PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Established 1886

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JULY
28
1938

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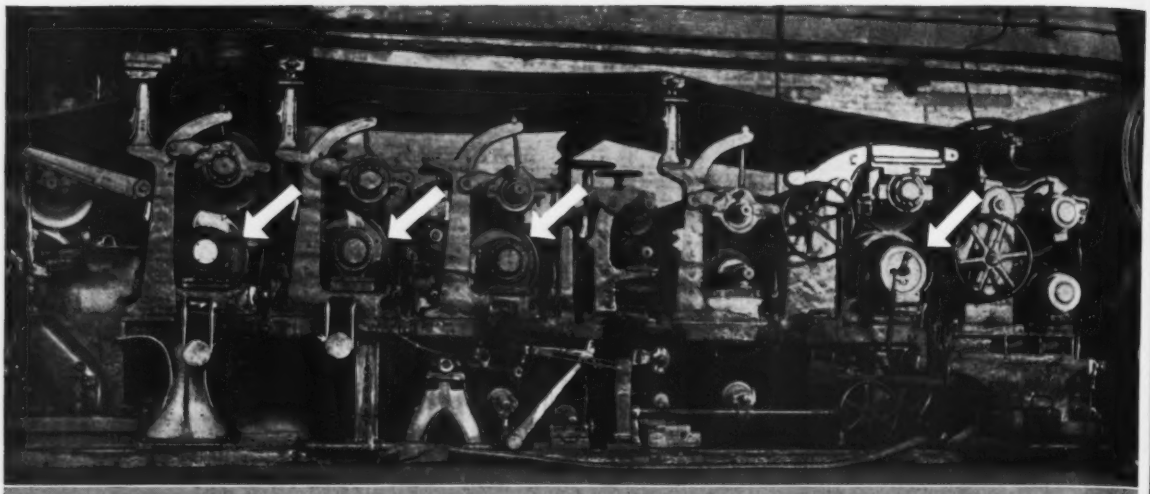
No. 4

DOWNINGTOWN



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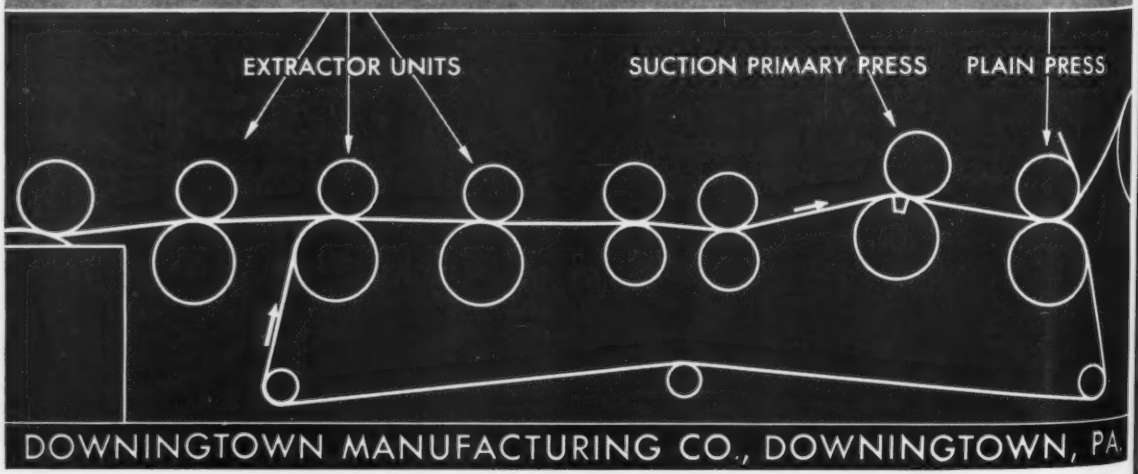

DOWNINGTOWN MANUFACTURING CO., DOWNINGTOWN, PA.

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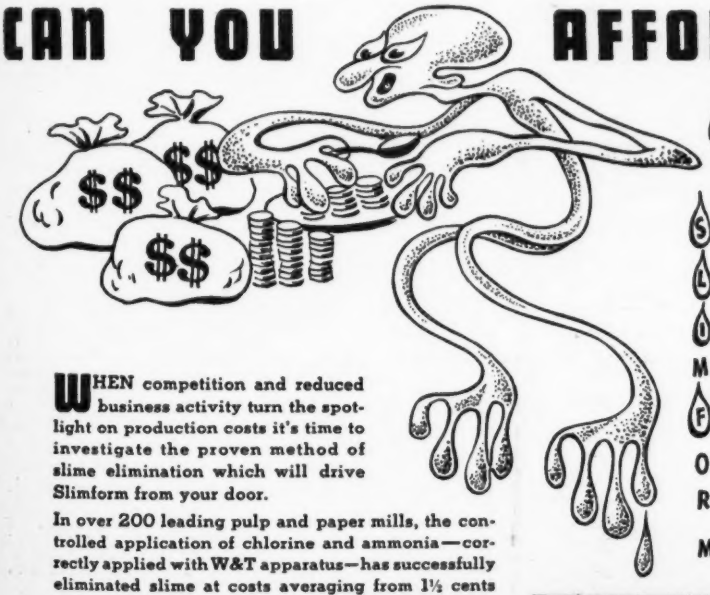
CAN YOU AFFORD TO FEED Slimform?



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In over 200 leading pulp and paper mills, the controlled application of chlorine and ammonia—correctly applied with W&T apparatus—has successfully eliminated slime at costs averaging from 1½ cents to 6 cents per ton of product.

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Lowered Quality—slime spots—pin hole—objectionable odors

Increased Costs—in water, heat, labor, chemicals

Maintenance Troubles—blinded wires—plugged felts

Frequent Clean-ups—slime breaks, poor sheet formation

Obstruction of Lines—stock and white water lines

Recirculation Difficulties—slime growths in recirculated systems

Mechanical Strain on felts and wires—shortened useful felt and wire life

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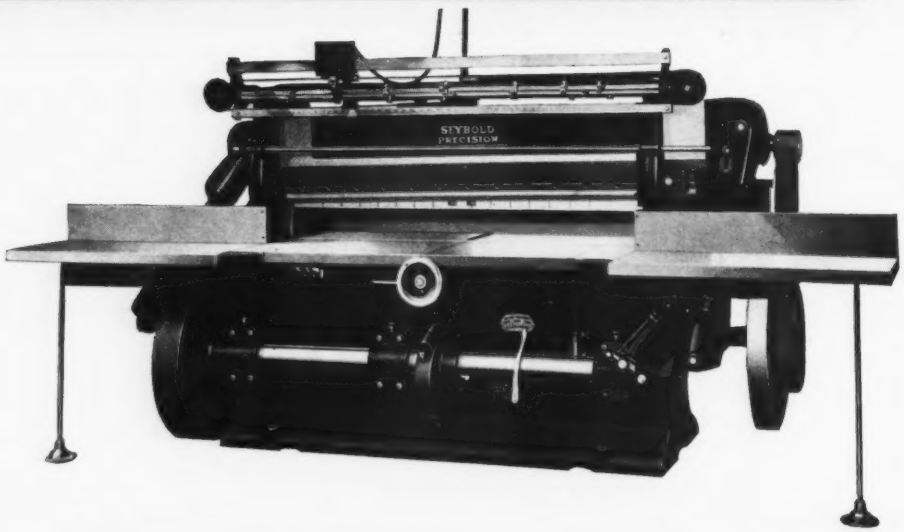

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PAPER TRADE JOURNAL

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SIXTY-SEVENTH YEAR

PAPER

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Consolidated Nov. 16, 1899
with PAPER TRADE JOURNAL.

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PULP

Established Sept. 21, 1918
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Quebec North Shore Company Is Formed

To Take Over Holdings In Quebec of Ontario Paper Co. Whose Newsprint Mill At Comeau Bay Was Recently Started — Follows Idea That Farms Using Resources of Province Should Come Under Quebec Laws.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 25, 1938—A new company named the Quebec North Shore Paper Company has been incorporated to take over the holdings in Quebec of the Ontario Paper Company, the activities of which are centered at Comeau Bay, Que., where a new mill was recently opened to supply newsprint exclusively for the *New York Daily News.*

The Quebec incorporation follows Premier Maurice Duplessis's idea that companies using the natural resources of the province should come under Quebec laws. One result of the change is that the province secures some $250,000 under the heading of transfer dues, most of which was paid last June.

The capital of the Quebec North Shore Paper Company with which to commence proceedings is $12,500,000. The incorporation grants the necessary powers to the company to carry on all operations in connection with an enterprise of that nature, including water power development, steamship lines, housebuilding, etc. Comeau Bay is being developed into a model town, as was noted when a large party recently went there for the official opening of the plant.

That the company does not wish to be exclusive in its own territory, but prefers a prosperous community, is indicated in the following authority given in the letters patent:

"To aid and assist by way of bonus guaranty, advances of money or otherwise, with or without security, settlers and intending settlers upon any lands belonging to or sold by the company or in the neighborhood of said lands, and generally to promote the settlement of such lands."

Complaint has been in this province for many years that the lumber man was the enemy of the colonist.

Bowater-Lloyd Issue Sold

A cablegram received here on Thursday last stated that half an hour after the opening of the market in London the subscription list for the stock issue of Bowater-Lloyd Newfoundland, Limited, was filled. This is the company that was formed of the Bowater Paper Mills to acquire the issued common share capital of International Power and Paper Company of Newfoundland. The new company will have a share capital of £500,000 in shares of £1 each, and will issue £1,250,000 four and a half per cent guaranteed first debenture stock at £98 per £100 face value.

Newsprint Prices in Great Britain

The Montreal Gazette publishes a report that a lower price for newsprint may shortly be announced in Great Britain for 1939. It accompanies the report with the statement that lowered costs of pulpwood and of Scandinavian labor paves the way for the cut and adds: "No similar reduction in costs is being experienced by newsprint manufacturers on this side, as wage levels, which were raised last year to the highest levels in several years, have been maintained and the cost of pulp from the nature of the Canadian industry is not a factor."

The report referred to says: "According to the gossip on the Street British mills will maintain in the first quarter of 1939 the current price of £11 10s per long ton, which, at 4.95 for sterling exchange, is equal to about $51.00 per short ton, and in the balance of 1939 it is said that the price will be set £11 5s a long ton, which would work out at about $50 a short ton.

"This report could not be confirmed in local newsprint circles, but it was said that if such is the case it would be a very constructive development, particularly as there had been some reason to fear that with pulp prices substantially lower this year a newsprint price might have to be quoted for 1939 well below existing levels.

"In this respect it may be informative to give the background of the newsprint price situation in the United Kingdom: It will be recalled that the price of newsprint was originally set by British mills at £10 per long ton for 1938 delivery, but that last fall British publishers, taking cognizance of the sharply increased cost of newsprint production resulting from the sharp rise in pulp prices, etc., voluntarily agreed to an increase from £10 to £11 10s. Just as the British mills at that time based their argument for an upward revision in contract prices on the fact of sharply higher costs, meaning the higher pulp and labor costs, etc., in Scandinavia, so, conversely, now when pulp prices have gone down

(Continued on page 18)

Company Outlines Situation of Wausau Mills

How Company Is Attempting To Work Out Production Problems Under Handicap of Recent Loss of Hydro-Electric Plant Told In Letter To Employees—D. C. Everest and S. F. Shattuck Discuss Selling—Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 25, 1938—How the Wausau Paper Mills Company, Brokaw, Wis., is trying to work out its problems under the handicap of the recent collapse of its hydro-electric plant is explained in a "cards on the table" letter sent out to each employee last week. The letter appealed for better and more efficient cooperation in the future, and says in part:

"During the period from 1931 through 1935 the paper mill lost $973,395.63. The physical condition of the mill at that time was anything but good and it was questionable whether the mill could ever be made to operate profitably. Your directors seriously considered discontinuing the operation entirely.

"However, at a meeting held in October, 1935, the directors formed the Yawkey-Alexander Lumber Company, which is wholly owned by the Wausau Paper Mills Company. The lumber company took over the timbered lands which had been owned by the paper company. The lumber company's instructions were to supply logs and pulp wood to the paper mill—manufacturing the other woods into lumber. The directors further decided they would attempt to rebuild the paper mill and convert it into the type of mill which would make the finer grades of paper. Mr. (W. B.) Clements came here as general manager and started out on this program and you all know the physical condition of the mill now is excellent and many worth while improvements have been made.

Financial Situation of Company

"To do these things required lots of money. Since November, 1935, and up to this date, four groups of stockholders, namely, the Alexander family, Stewart family, Yawkey-Woodson family and a Mr. Lindley, have loaned to the two companies $490,000; the First National Bank of Chicago has loaned $250,000, and people other than stockholders and banks, $25,133.33. The same group of stockholders allowed us to retain moneys due them for prior loans amounting to $74,000, making a total of all these loans of $839,133.33.

"During the period January 1, 1936, to May 31, 1938, there have been a total of 22 months in which losses occurred and seven months in which we have had profits.

"During the month of May, for the first time, we had the mill in such shape we felt we could compete with mills making finer grades of paper. On May 29 the hydro-electric plant and a portion of the dam went down the river—a very serious blow to us.

"At two directors' meetings in June Mr. (Ben) Alexander, the president and the directors of the company faced these facts when deciding whether to continue operations:

"Since January 1, 1931, the total loss of these companies amounted to $1,232,653.94. General business conditions are about the same as they were during the 1932-1933 period and, seemingly, growing worse. Conservative business judgment would have meant the paper mill be closed down for an indefinite period, or until there was some evidence that business conditions had changed for the better. Having in mind that some 500 to 550 families were dependent upon the operations at Brokaw and Schofield, and having confidence in the future of our great country, they decided to gamble again on better business conditions being with us soon and loan to us an additional $116,666.66, of which $66,666.66 will come from the same group of stockholders and $50,000 of which will be loaned by our bank connections—making a total of all loans $955,799.99 to provide jobs for us.

Lack of Power a Handicap

"These additional funds have been used to reconstruct the old wooden dam at Brokaw and will be used to buy materials, supplies and pay our labor. This temporary setup does not solve our problem because it is necessary for us to buy much additional power from the Wisconsin Public Service Corporation, which will make our operation more costly and less efficient than it was formerly. However, if we can prove during the coming six months we can operate profitably then we feel confident a permanent and more efficient plan will be worked out to solve our power problem."

Optimism for a gradual improvement of business for the next few years at least was expressed by D. C. Everest, vice-president and general manager of the Marathon Paper Mills Company in an address Thursday, July 21, at an open air mass meeting at Menasha, Wis. The gathering was held by manufacturers and business and professional men of Neenah and Menasha to encourage the slogan coined by George Mason of Nash-Kelvinator, "Sales mean jobs."

D. C. Everest Sees Uptrend in Industry

Mr. Everest said the mental attitude is changing; the clouds of gloom are being dispelled, partly because the recent stock market activities have helped to change the mental attitude of people, and partly because the crusade itself has called a halt on gloom dispensing. Widely distributed government spending also is a factor in improvement, the speaker said. Commodities are priced at as low a level as seen for some time, and there is a great potential demand which has waited for lower prices, not only in the consumption goods market but also in the heavy industries and capital goods.

Pointing to the salesmen as the backbone of the entire business structure, Mr. Everest suggested that nearly every plant in the community needs revamping, and that the increased sale of capital goods in the heavy industries would follow the increased sales of consumer goods, for the industrialists are waiting for a favorable time to improve their factories. He suggested that the time to act is now, because

the advance, when it comes, may be just as rapid as the decline was. He foresees an improvement in the automotive industries, and predicts a shortage of skilled labor. The latter condition comes about, he said, because young men have not become apprentices during the last ten years. "Eventually we will be able to employ all who desire to work," he said.

Brief Address by S. F. Shattuck

A brief address also was made by S. F. Shattuck, vice-president of Kimberly-Clark Corporation, who said the idea of "Sales mean jobs" is not new, but a slogan had been coined and a movement started. He pointed out that recently all salesmen of the company's products manufactured in the Lakeview mill in the United States, Canada and England met at the mill and learned that the workers in the mill are dependent on the efforts of the salesmen for a full running schedule.

They went away determined to keep the mill workers busy. "The idea, if properly applied, works," he declared.

Functions of Personnel Department

Functions of the personnel department of Kimberly-Clark Corporation were explained by J. C. Simonich in an address at the Lions club at Neenah, Wis., last week. He said the department makes a study of the man in relation to the job he is to perform, and then selects the right type of person to fill the requirements and sees that he has proper training. This plan is found more satisfactory in a large industry than to trust to the judgment of a superintendent, he said.

Seven specific functions were enumerated: Setting of hours of work and rates of pay; employment, including hiring, selection, followup conferences, layoffs, promotions and transfers; training workers in health and safety measures in which working conditions are carefully guarded to insure health and safe use of machinery is taught; employee service such as maintenance of lunch rooms, lockers, showers and other conveniences; risks and insurance, and organization control such as deciding on vacation privileges, lunch periods and other things.

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 27, 1938—The Government Printing Office has received the following bids for 2,000 pounds of moisture proof paper: R. P. Andrews Paper Company, 7.4 cents; Whitaker Paper Company, 5.55 cents; Mathers-Lamm Paper Company, 6.95 cents and 6.5 cents; and Mudge Paper Company, 6.75 cents.

For 37,800 pounds (150,000 sheets) of 34x44 coated book paper: Butler Company, 6.79 cents; John F. Post, Inc., 6.5 cents; Walker, Goulard Plehn Company, Inc., 6.71 cents; Stanford Paper Company, 6.29 cents; Marquette Paper Company, 6.74 cents; R. P. Andrews Paper Company, 6.3 cents; Barton, Duer & Koch Paper Company, 6.65 cents; Whitaker Paper Company, 6.3 cents; Mudge Paper Company, 6.67 cents; and Paper Corp. of U. S., 6.5 cents.

For 12,183 pounds (25,000 sheets) of 27x39 high finish red rope paper: R. P. Andrews Paper Company, 6.8 cents; Whitaker Paper Company, 8.57 cents; Tarentum Paper Mills, 11.5 cents.

Heads United Wall Paper Factories

The board of directors of United Wall Paper Factories, Inc., at a meeting held in New York City, July 22, elected Albert J. Browning of Chicago president of the company. Mr. Browning, formerly group merchandise manager for Montgomery Ward & Co., will assume his new position August 1. His headquarters will be at the company's general offices in Chicago.

Mr. Browning joined Montgomery Ward & Co. in 1934. At first manager of the paint department, other lines were later assigned to him, and in December, 1937, he was appointed group merchandise manager. He has had charge of the heavy lines, including building materials, hardware, paints, wall paper, housewares, sporting goods and farm machinery.

Before joining Ward's, Mr. Browning was general manager of the Peninsular Paint & Varnish subsidiary of the Sherman-Williams Company. After first attending Purdue, and later graduating from the Massachusetts Institute of Technology in 1922 where he specialized in chemical engineering and engineering management, he became associated with the Robertson-Cataract Electric Company of Buffalo and Syracuse, N. Y., and three years later was appointed sales manager by the Intermountain Electric Company of Salt Lake City. At the present time, Mr. Browning resides in Evanston, Ill.

United Wall Paper Factories, Inc., the country's largest manufacturer of wall paper, was formed in 1927, a consolidation of several companies. It has plants in Chicago and Joliet, Ill.; Appleton, Wis.; Jersey City, N. J.; Hudson Falls, N. Y.; and York, Pa. Annual volume of sales are reported to be over $5,000,000. The most recent financial statement shows current assets to be almost $1,000,000 in excess of total liabilities.

The retiring president of United Wall Paper Factories, Inc., C. W. Kellogg of Hudson Falls, N. Y., will continue to serve as a director of the company.

Sherman Paper Mills Not Sold

[FROM OUR REGULAR CORRESPONDENT]

GREAT BEND, N. Y., July 25, 1938—Rumors to the effect that the Anderson Land Company, Inc., owners of the mills and water power rights of the bankrupt Sherman Paper Company, has sold the power rights to the Niagara-Hudson Power Corporation and the mills to Abe Cooper, of Syracuse, were denied this week by Attorney Henry A. Wise. He stated that negotiations have been under way with paper manufacturing interests in the hope of making a sale to concerns which would keep them in operation and provide work for the former employees. There is a possibility of a sale, he said. The mills of the paper concern were recently purchased by Mrs. E. A. Wise for $31,023.16 subject to $180,163.79 of mortgages, all of which she held. After the purchase of the properties at public auction, there being no other bidders, the Anderson Land Company was incorporated to take over the properties. Late last week Attorney Wise in behalf of that company and Attorney Dunk appeared before Justice Frederick Bryant asking confirmation of the sale of the properties to Mrs. Wise. These properties consist of paper mills at Great Bend and Felts Mills and a ground wood mill at Lefesvre.

Canada Encouraged by Improved Demand

Recent Increase In Volume of Sales Creates Better Feeling In Paper Industry, Though Pulp Market Situation Causes Concern—Abitibi Reports Earnings and Newsprint Shipments—Other Late Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 25, 1938—Although business is still rather quiet in the pulp and paper line generally, and in volume and sales has been about what it was two years ago, there is noticed of late an increase in orders and the outlook is more cheerful. Producers and wholesalers are feeling better and while a number report that trade is spotty, there is a belief that the swing will be upwards with the approach of the fall months. Book and writing plants, which have been operating to about 75 per cent capacity, are receiving more orders. They have been producing on a schedule from ten days to two weeks ahead but now report that they have bookings from three weeks to a month in advance. Owing to reduction in prices on certain lines of paper in the United States it has been felt for some time that there would be a change in prices on book, writing, kraft and coated stock and that the figures would be decreased. There have been no changes in quotations for months and it is thought it will not be necessary to make any now owing to the turn in the tide.

Canadian Pulp Market Conditions

The pulp situation is not encouraging and the reduction in prices on sulphite of five dollars per ton which went into effect some time ago, has not improved conditions existing at the present time. In the paper box line which is good indicator of business in many other industries, orders have started to rise. Most of these have emphasized the necessity of prompt delivery indicating that inventories have been exhausted by meat packers, candy manufacturers and brewers. The folding and set up box trade has not been affected as much as corrugated and solid fibre boxes.

In the newsprint arena the biggest improvement so far this year has been the decline in publishers' paper stock. If the present rate of consumption continues these stocks should be back to normal by the end of August. The most encouraging feature is that, by the end of the year, production and marketing should be on a stabilized basis. In that event, Canadian newsprint mills should be back in their stride for 1939 with better operations, more shipments and higher earnings.

Abitibi Earnings and Shipments

The earnings of the Abitibi Power and Paper Company, Limited, Toronto, for June, 1938, prior to charges for depreciation and bond interest, amounted to $331,067 as compared on similar basis with $285,264 for May, 1938, and $394,169 for June, 1937. The shipments of newsprint in June, 1938, amounted to 27,493 tons as compared with 25,412 in May and 39,671 in June, 1937. G. T. Clarkson, Toronto, receiver and manager of the company, says that indications are shipments of newsprint in July will be about 21,000 tons. Shipments of bleached sulphite pulp in June amounted to 2,142 tons as compared with 3,000 tons in May and 5,564 tons in June, 1937. Present indications are that shipments of bleached sulphite in July, 1938, will be about 2,300 tons. The record of earnings of the Abitibi Company from the beginning of 1937 to date shows a consistent rise in the first seven months of 1937, a sharp recession from August, 1937, to February, 1938, and consistent expansion since. Progress this year since February is revealed as follows—March, gain over February 81.8 per cent; April gain over March, 30 per cent; May gain over April 54.9 per cent and June gain over May 16.2 per cent. The company has this year done a little better than was expected at the outset of each month. Shareholders have been looking for the last half of 1938 for an increase in orders. Optimism has gone up materially in the past few weeks but business has so far not stepped sufficiently ahead to justify too roseate hopes, even though it is very probable that the last half of 1938 will be a much better period so far as volume is concerned than the last six months in the United States where major sales are made.

Dryden Paper Reports Earnings

It is expected that the building program of the federal government will substantially increase the sale of building paper in Canada and officials of the Dryden Paper Company, Limited, Dryden, Ont., consider the prospects for the balance of the year much brighter. The net earnings of the company for the nine months period ending June 30, 1938, were $50,600, after allowance for bond interest before depreciation, depletion and year-end adjustments. In the corresponding period a year ago, the net was $151,000. The reduction is attributed to restricted activity in the pulp and paper industry. All the company's pulp output has been marketed in the United States but business in this line has been very quiet.

To Make Insulating Board in Australia

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 27—It has been announced by the Colonial Sugar Refining Company, Ltd., that after more than 5 years' research, it has decided to begin large-scale manufacture of insulating board from sugar cane fiber, according to reports from the office of the American Trade Commissioner, Sydney, Australia. A factory is now being constructed which will have a capacity of 30,000,000 square feet of board a year. Pending completion of the plant which probably will not enter production before the end of 1939, the company will import the same kind of board which it plans to manufacture. The imported board will be sold under the name of "Cane-ite," a trade name which will also be used for the board to be manufactured by the Australian company.

Financial News of Pulp and Paper Industry

Bartgis Bros. Co. For Half Year Ending June 30 Earn $379,412 As Compared With $415,604 For Same Period Last Year — Net of Kimberly-Clark Lower For Quarter Ending In June—Certain-Teed Earns $106,618.

NEW YORK STOCK EXCHANGE

High, Low and Last for the Week Ending July 27, 1938

	High	Low	Last
A. P. W.	3¾	3¾	3¾
Armstrong Cork Co.	47½	43½	43½
Celotex Corp.	25½	23¼	23¼
Celotex Corp., pf.	72½	67	67
Certain-Teed Products Corp.	10½	9	9⅞
Certain-Teed Products Corp., pf.	40	36½	36½
Champion Paper & Fibre Co.	30½	27½	27½
Champion Paper & Fibre Co., pf.	97½	97	97½
Congoleum-Nairn Co.	28	24½	24¾
Container Corp. of America	17¼	16	16
Continental-Diamond Fibre Co.	11⅞	9½	10¾
Crown-Zellerbach Co.	14¾	13	13
Crown-Zellerbach Co., pf.	82	80	81
Flintkote Co.	24¾	21¼	21¾
Robert Gair	5⅜	5	5⅛
Robert Gair, pf.	17⅞	17⅛	17⅛
International Paper & Power	11½	10⅛	10⅜
International Paper & Power, pf.	47⅜	42½	43
Johns-Manville Corp.	99¼	93½	94
Kimberly-Clark Corp.	30	28	28
Masonite Corp.	48¾	45½	46
Mead Corp.	15¾	14	14
Mead Corp., pf.	68	67	67
Paraffine Companies, Inc.	50	49	49½
Paraffine Companies, Inc., pf.	94	94	94
Ruberoid Co.	25¾	23¾	23¾
Scott Paper Co.	47⅜	45¾	45¾
Sutherland Paper Co.	31	29½	29½
Union Bag & Paper Corp.	15	13½	14
United Paperboard Co.	8	7¼	7¼
U. S. Gypsum Co.	96¾	91⅞	91⅞

NEW YORK CURB EXCHANGE

High, Low and Last for the Week Ending July 27, 1938

	High	Low	Last
American Box Board Co.	12⅛	11¼	12⅛
Brown Co., pf.	31	28	29
Great Northern Paper	29½	28⅞	29
St. Regis Paper Co.	4	3⅜	3¼
Taggart Corp.	6	5⅜	5⅞

Bartgis Bros. Report $379,412

Net sales of the Bartgis Brothers Company, Ilchester, Md., for the half year ending June 30, 1938 were $379,412.29 as compared with $415,604.12 for the same period in 1937 and $329,376.93 for the same period in 1936.

Maintenance repairs and depreciation for the six months period ending June 30, 1938 were $40,077.17, compared with $31,365.70, for the first six months of 1937. Our payroll increase over the same period in 1937 was approximately $12,000.00, while our net sales for the same period in 1938 were $36,191.83 less.

Net profit, after provision for estimated State and Federal Income Taxes, for the half year ending June 30, 1938 was $38,844.70. After deductions of preferred dividends such net profit was equal to approximately 31 cents per share on 108,052 shares of common stock outstanding June 30, 1938. In the first six months of 1937 such net profit before preferred dividends amounted to $70,183.90, after making provisions for all Federal Taxes.

Preferred dividends have been paid regularly and a common stock dividend of 15 cents per share was paid April 30, 1938 to holders of record April 20, 1938.

Ratio of current assets to total liabilities as of June 30, 1938 was 2.5 to one, working capital $128,631.68 as compared with December 31, 1937 ratio of current assets to liabilities 2.7 to one and working capital $138,592.90.

In connection with the report, E. H. Lupton, president, says: "We are now receiving unusually large numbers of inquiries which will probably result in a more discriminating policy towards the business that we will accept and it's expected that the balance of the year will show greater returns and that the increased payroll with decreased sales will be overcome without adjustment of wages."

Kimberly-Clark Earnings Lower

[FROM OUR REGULAR CORRESPONDENT]

NEENAH, Wis., July 25, 1938—Net profits of Kimberly-Clark Corporation for the quarter ended June 30, 1938, were considerably below those of the first quarter, according to the company's income statement issued last week. The net after all deductions was $275,213.76, as compared with $435,232.17 for the quarter ended March 31, 1938. These earnings are equal to 56 cents a share on 488,173 shares of common stock for the current quarter, compared with 89 cents for the first quarter of this year.

With a total net of $710,445.93 for the first six months of 1938, the earnings are equal to a semi-annual earning of $1.45 per common share as against $1.89 per share for the corresponding period of 1937. On an annual basis of comparison, the net earnings for 12 months ending June 30 were $1,553,460.97, or $3.18 per common share, comparable with $2.86 per share for the 12 months ending June 30, 1937.

Net sales dropped from $7,328,874.21 for the first quarter of 1938 to $5,933,655.92 for the second quarter. Profit from operations for the first quarter was $799,692.16 and for the second quarter, $578,183.87, or a total of $1,377,876.03 for the first six months.

Net income was reduced by a loss of $30,000 shown by the William Bonifas Lumber Company, a wholly owned subsidiary, for the second quarter. This company's loss for six months ended June 30 was $71,500.00.

Provision was made for payment of $298,890 in dividends on preferred stock for the first six months.

Certain-teed Nets $106,618

The Certain-teed Products Corporation reported for the second quarter net earnings of $106,618 after interest and depreciation, contrasted with a net loss of $189,587 in the first quarter and a profit of $163,056 in the second quarter of 1937. The deficit of $82,968 for the first six months of 1938, contrasted with a profit of $170,072 in the first half of last year.

Walter G. Baumhogger, president, in his semi-annual report to stockholders, said inventories were reduced from $2,222,725 on June 30, 1937, to $1,814,160 on June 30. 1938. He pointed out that the net sales value of $3,526,121 in the second quarter of 1938 was about the same as in the first quarter, but that general administrative and selling expenses

were reduced through consolidation of offices and other economies. Mr. Baumhogger found an apparent backlog of demand for building materials which he felt should result in a better sales volume in the last half of the year.

Whitaker Clears $60,335 for Six Months

F. H. Hewitt, secretary of the Whitaker Paper Company, has announced that the firm's net profit for the first six months of 1938 was $60,335, as compared with $209,198 for the six months ending June, 1937.

The net profit per share of common stock for the initial six months of this year, after payment of taxes and preferred dividends, amounted to $1.06, as against $5.98 for a similar period last year.

The board of directors declared the regular quarterly dividend of $1.75 on the preferred stock, payable October 1, 1938, to stockholders of record September 17, 1938.

Brown Co. Reorganization

Two reorganization plans will soon be presented to the security holders of the Brown Company. Both plans involve R.F.C. loans. One plan comes from the bondholders committee, the other from the management. The company's plan modifies the one presented last summer which would have spent $5,000,000 in expanding the Canadian mill. They would increase bonded interest. The Bondholders committee proposes a reduction in fixed charges.

Sutherland Paper Co. Makes Good Report

A net profit of the Sutherland Paper Company for the twelve months ending June 30 was $705,000, compared with $826,348 for the twelve months ending June 30, 1937.

The net profit for the first six months of 1938 was $391,506, equal to $1.36 per share on the outstanding 287,000 shares of common stock. For the same period in 1937 the net profit was $491,435, equal to $1.71 per share.

Soundview Pulp Co. Earns $307,972

The Soundview Pulp Company and subsidiaries for the first six months of 1938 to June 30 report as follows:—Net income, $307,972, against $670,979 earned last year. June quarter net income of $110,764, compared with one of $197,208 in March quarter and $432,484 income in second quarter of 1937.

Hummel-Ross Profit $49,418

Hummel-Ross Fibre Corporation for the six months to June 30, reported a net profit $49,418, equal, after preferred dividend requirements, to 7 cents each on 398,725 common shares outstanding, against $461,753, or $1.13 a share on 389,611 common shares last year.

Keyes Fibre Earns $82,727

Keyes Fibre Company reports for the six months to June 30, net income, before Federal income taxes, of $82,727, compared with $59,910 earned last year before tax deduction.

Container Corp. Reports Loss

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, July 26, 1938—Dollar sales volume of Container Corporation of America in the first half of this year was about 40 per cent less than that of the corresponding period in 1937, Walter P. Paepcke, president, announced here last week.

Operations in the second quarter of the current year produced a net loss of $67,053. In the corresponding quarter of 1937, net earnings amounted to $751,877, equal to 96 cents a share.

The company's financial result in the last six months represented a net loss of $120,251. In the comparable period last year, net earnings totaled $1,319,294, equivalent to $1.69 a share on the 780,056 shares outstanding at that time.

For the twelve months that ended June 30, net earnings were $344,559, or 44 cents a share on 781,253 shares outstanding. This compares with $2,154,391, or $2.76 a share, for the previous year. The foregoing figures, Mr. Paepcke pointed out, reflect the company's results after allowance has been made for all charges, such as interest, depreciation, year-end adjustments and federal taxes.

In commenting on the situation Mr. Paepcke said there had been, "some indications in the last 30 days of a modest contra-seasonal improvement in volume."

He added, however, that further substantial reductions in the selling prices of many of the company's products during the second quarter, "more than offset, unfortunately, the benefits of many operating economies and of the present improved volume of business." The corporation's net working capital, Mr. Paepcke said, totaled $4,476,576 at the end of June. This represented a decrease of $9,584 since the first of the year. Funded debt was reduced by a par value of $171,000. Cash on hand June 30 of $1,385,994, accounts receivable of $1,199,006 and inventories of $3,186,050 were contrasted to total current liabilities of $1,294,473.

Naval Stores Year Book

The 25th anniversary issue of Gamble's Naval Stores Year Book for 1938-39 has just been issued by Thomas Gamble, 206 East Bay street, Savannah, Ga., publisher of the *Naval Stores Review*. The 164-page publication gives a comprehensive survey of the naval stores industry with a large amount of statistical and general information relating to the international production and consumption of turpentine, rosin and pine oil. The price of the publication is $3.

Champion Paper Reports $1,557,439

The Champion Paper and Fiber Company and subsidiaries report as follows for year to April 24: Net profit after depletion, amortization and surtax, $1,557,439, equal after 6 per cent preferred dividends to $1.98 each on 551,000 no par common shares, against $1,753,408, or $2.34 a common share, in preceding year.

Joins Knight, Allen & Clark

BOSTON, Mass., July 18, 1938—James C. Gray has joined the sales staff of Knight, Allen & Clark, Inc., and will cover Metropolitan Boston.

It's always BANK NIGHT *in mills that run*

STONITE* *Rolls*

TOP PRESS AND SMOOTHING

★ (*Ebonite and Granulated Stone Composite U. S. Patent 1,787,890 Re. 18,111*)

Can you afford to overlook a chance to improve both quality and production in these four important ways? Especially when scores of mills, many of them making grades and weights like yours, have already taken full advantage of the unique properties of STONITE* Top Press and Smoothing Press Rolls. May we tell you what STONITE* Rolls have done in other mills and how you can make the same improvement?

STOWE-WOODWARD, INC. NEWTON UPPER FALLS • MASS.
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Makers of WHITE STAR *Rubber Covered Rolls,* TANNITE *Couch Rolls*
STONITE *Top Press and Smoothing Rolls—All by the* COREWELD *Process*

Manufactured on the Pacific Coast by HUNTINGTON RUBBER MILLS, *Seattle, Washington*

TAPPI Green Bay Plans Progressing

Following the outstanding success of its recent fall conventions the Technical Association of the Pulp and Paper Industry expects, once more, to maintain the high standard that it has set for itself when it meets at Green Bay, Wis., on September 8, 9, and 10, 1938.

"Historic Green Bay Welcomes TAPPI" has been adopted as the slogan for this meeting. Those who attend will have an opportunity to see this famous section of the country with its interesting historical background.

Reservations

Reservations are being received daily by N. L. Malcove, of the Northern Paper Mills, who is taking care of this detail.

A beautiful souvenir program will be issued at the meeting and will contain its usual large number of advertisements. The deadline for the reservation of space will be August 15. The Northland Hotel is excellently laid out to give exhibitors of equipment real benefit. There are still a few spaces left. Correspondence, in regard to advertising and exhibit space, should be sent to R. D. Cords of the Northern Paper Mills, Green Bay, Wis.

Professional Football

Curly Lambeau, coach of the famous Green Bay Packers, professional football team, has notified the committee that a separate section of seats has been set aside for those who will be attending the TAPPI convention. This will be the first game of the season and will be with the Cleveland Rams on Sunday, September 11. Convention visitors should make their reservations with N. L. Malcove and should do so soon since the football game at Green Bay is a Wisconsin institution and standing room only usually prevails long before the day of each game. The stands, this year have been extended to meet the increased demand.

General Program for Men

THURSDAY, SEPTEMBER 8, 1938

8:30 A.M. Registration.

10:00 A.M. In the July 21st issue of the Paper Trade Journal, the following papers were indicated to be presented on Saturday, September 10. "The Study of the Absorption of SO_2 In Water", by Charles Riley, Kimberly-Clark Corp.; "Studies of Formation and Paper Uniformity," by Homer Malmstrom, Kimberly-Clark Corp. The program has been changed and these papers will be presented on Thursday, September 8, at 10 A. M.

12:30 P.M. Luncheon (Speaker to be announced).

2:00 P.M. Technical Program featuring the work being done at the Forest Products Laboratories, Madison, Wis.

7:00 P.M. Harvest Festival, Dinner and Costume Ball at the Riverside Pavilion.

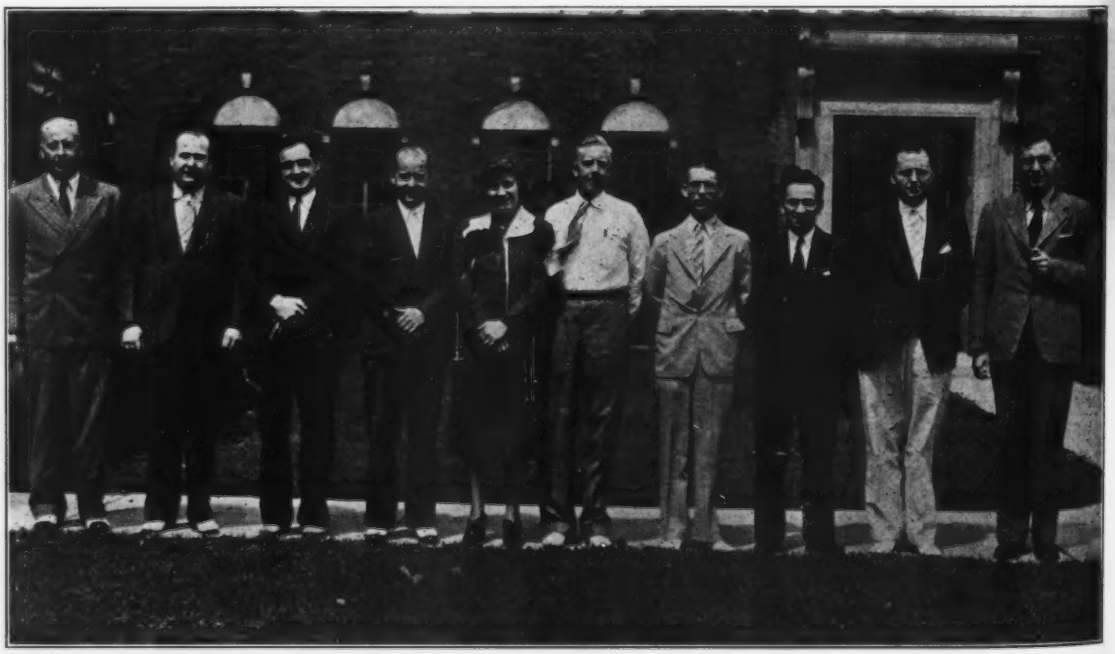
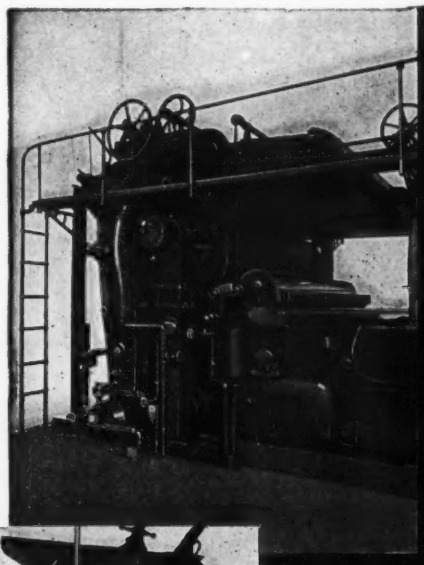


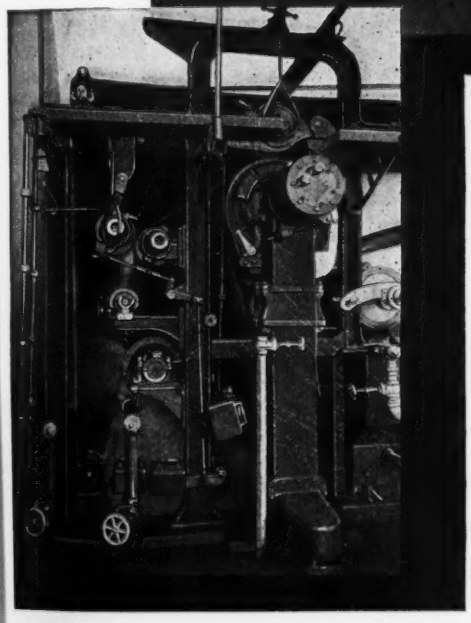
Photo by Staber W. Reese

TAPPI GREEN BAY CONVENTION COMMITTEE 1938

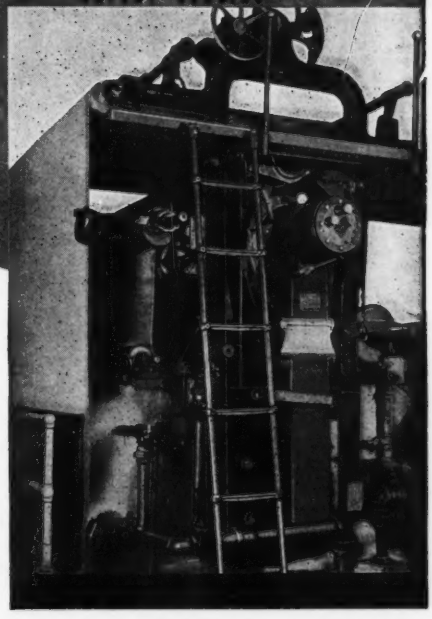
W. F. Kerwin, Transportation; A. D. Murphy, Vice-Chairman; P. M. Chiuminatto, Secretary and Treasurer; A. B. Hansen, General Chairman; Mrs. H. W. Cochnauer, Ladies' Program; W. C. Christensen, Vice-Chairman; W. J. Servotte, Asst. Gen. Chairman; N. L. Malcove, Arrangements; Don Fairbairn, Publicity and Printing; John Maloney, Entertainment.



BELOIT SUCTION *Drum Press*



Results: Equivalent to suction drum and suction primary press combined



An absolute necessity on every board machine

Superior to all other methods of water removal on wet felts. • There must be a reason for over thirty of these rolls.

Ask the mills who installed them.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH BELOIT WIS **IS THE MODERN WAY**

BELOIT IRON WORKS, Beloit, Wisconsin, U. S. A.

FRIDAY, SEPTEMBER 9, 1938.
9:00 A.M. Technical Program featuring the work being done at the Institute of Paper Chemistry, Appleton, Wis.
12:30 P.M. Luncheon (Speaker to be announced).
2:00 P.M. Golf and Skeet Tournaments. Visits to local industries and the Institute of Paper Chemistry at Appleton.
7:30 P.M. Formal Banquet at Riverside.

SATURDAY, SEPTEMBER 10, 1938.
9:00 A.M. Technical Program featuring mill operations papers.
11:00 A.M. Buses leave for Maxwelton Braes.
2.00 P.M. Recreational Program.
6:00 P.M. Buffet Dinner at Maxwelton Braes. Special entertainment.

SUNDAY, SEPTEMBER 11, 1938.
Professional football program at the Packer Stadium, Green Bay Packers vs. Cleveland Rams.

Special Ladies Program

THURSDAY, SEPTEMBER 8, 1938.
12:30 P.M. Luncheon at Beaumont Hotel.
1:30 P.M. Historical tour and trip to Kraft cheese factory.
4:00 P.M. Afternoon tea at Oneida Golf Club.
7:00 P.M. Harvest Festival at Riverside.

FRIDAY, SEPTEMBER 9, 1938.
12:30 P.M. Luncheon and Bridge at Rockwood Lodge. Visit to Nicolet Landing.
7:00 P.M. Formal Banquet.

SATURDAY, SEPTEMBER 10, 1938.
11:00 A.M. Buses leave for Maxwelton Braes.
12:30 P.M. Luncheon at Maxwelton Braes.
6:00 P.M. Buffet Dinner and Entertainment at Maxwelton Braes.

Send in your hotel reservation to N. L. Malcove, Northern Paper Mills, as soon as possible.

Type "C" Steam Turbines

Type "C" Steam turbines particularly adopted to driving pumps, forced and induced draft fans, compressors, Jordans, pulp beaters, pulverizers and line shafts are described in a 12-page illustrated booklet recently published by Westinghouse Electric and Manufacturing Company. They are built in capacities ranging approximately from 5 to 500 horsepower at turbine speeds of 1000 to 5000 rpm.

The booklet points out the application, features, design and advantages of these turbines and tables give specifications of the various types.

Copies of the booklet B.2084-A may be secured from the nearest district office of the Westinghouse Electric and Manufacturing Company, or from headquarters at East Pittsburgh, Pa.

Motors and Controllers

In bulletin No. GEA-2026-A, the General Electric Company, Schenectady, N. Y. describe the construction, operation and brake adjustment of their brake-motor, which is extensively used in industrial plants. A new publication, GEA-1724-A, describes in detail the complete line of General Electric controllers for synchronous motors, which are available in full-magnetic or semi-magnetic types in all standard voltages and frequencies to suit any installation.

QUEBEC NORTH SHORE CO. FORMED

(Continued from page 9)

considerably a case could be made for an adjustment in the price of the finished product. Accordingly, an announcement to the effect that the existing prices would be maintained by British mills, presumably with the acquiescence of the publishers, for the first quarter of 1939 with a reduction of only about $1 a ton for the remaining nine months of the year would certainly be regarded as constructive in Canadian newsprint circles."

Newsprint for Australia

The Manz Line freighter, Canadian Challenger, formerly one of the fleet of the Canadian Government ships, has just left Montreal after being overhauled in the shipyards here. She is taking on a full load of newsprint at Three Rivers and Port Alfred and is leaving this week for Australia.

Newsprint Exports Down in June

Canada's exports of newsprint in June amounted to 3,890,414 cwt., valued at $8,441,719, as compared with 4,181,388 cwt., valued at $9,135,364 in May, and 6,132,911 cwt., valued at $11,401,687 in June, 1937. These figures have just been issued by the Dominion Bureau of Statistics, which states that the exports for the three months ending June, at 11,806,334 cwt., were 5,276,905 cwt. less than in the similar period of last year, while the value at $25,556,979 was lower by $5,795,244 than in the three months ending June, 1937. The exports of wood pulp were also lower in June, being 714,143 cwt., valued at $1,672,126, as compared with 965,925 cwt., valued at $2,409,838 in May. For the three months ending June exports amounted to 2,331,861 cwt., valued at $5,954,981, as compared with 4,368,618 cwt., valued at $10,310,579 for the similar period of 1937.

Scan Waste For Valuable Records

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 25, 1938—While it is generally conceded that conditions in the waste paper industry are virtually stagnant, those in the trade here are all agog with the news of the good fortune that may be the lot of Harry Golen, president of the Hancock Paper Company, 414 Brown street. Mr. Golen purchased forty tons of records for $216, which records were sold as useless papers several days ago by Custom House officials here, and they are now wondering if this collection contains valuable historical documents. Meanwhile Mr. Golen together with Joseph Klein of 2019 North 7th street, a student of old documents and a stamp collector, are pouring over the documents in the Hancock Paper Company's plant.

A. Raymond Raff, Collector of the Port, insists the documents were useless. He said the sale was approved by the Federal Archives in Washington. In the collection were extracts from the journal of the revenue schooner, Forward, commanded by Henry D. Hunter, and dated December 1, 1843. Other documents mentioned the privateers in the War of 1812. One contained the signature of Bret Harte, author, when he was Consul in Glasgow in 1880.

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EBG Liquid Chlorine
FIRST IN THE COUNTRY

Obituary

Jay Madden

Jay Madden, founder of the Jay Madden Corporation, died Friday morning, July 22, at the Greenwich Hospital, Greenwich, Conn., where he had been a patient six weeks.

Identified in the paper industry both here and abroad through his entire business career, Mr. Madden eight years ago established the Jay Madden Corporation of New York, of which he was president at the time of his death.

Born in New York, he was the son of the late William J. Madden and had lived in Greenwich for the last eighteen years. Mr. Madden was a member of the Round Hill Club and the Field Club, Greenwich, and the Union League Club of New York.

During the World War, he served in the aviation corps, being stationed at Plattsburg and later at Morrison, Va.

Surviving are his widow, Audrey Hammond Madden; three daughters, Mrs. William H. Chickering of Honolulu, Anne Hammond Madden and Jane Wade Madden of Greenwich, and one son, James H. Madden of New York.

Roger B. Taft

Roger B. Taft, New York district sales manager for Hammermill Paper Company, died late Friday, in his summer residence at 163 Beach Third street., Far Rockaway, Long Island. He was 53 years old. He had been ill for the past year.

Mr. Taft had been a regular visitor to Erie for the past quarter of a century and was well known here in business circles. He had been associated with the Erie paper company since 1910.

Burial was in East Pepperell, Mass. A widow, Mrs. Helen Taft, and two children, Helen and Roger, Jr., survive.

Charles W. Wood

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 25, 1938—Charles W. Wood, oldest employee of the Scott Paper Co., died on Monday of last week at his home, 616 Erie street, Camden, N. J.

Mr. Wood, who had been with the Scott organization for 57 years, was born in Repaupe, N. J. He was a member of Ionic Lodge, F. and A. M. of Camden.

His wife, Mrs. Mary Wood, and a daughter, Mrs. Clarence L. MacNally, survive. Funeral services were held during the week at 423 Cooper street, Camden. Interment was in Harleigh Cemetery.

Nekoosa-Edwards Reelect Officers

[FROM OUR REGULAR CORRESPONDENT]

NEENAH, Wis., July 25, 1938—All officers of the Nekoosa-Edwards Paper Company were reelected at the annual meeting last week. They are: John E. Alexander, president and general manager; J. A. Auchter, vice-president and treasurer; C. A. Jasperson, secretary, and Harry Deyo, assistant secretary. The remaining directors also reelected are Guy O. Babcock, J. B. Nash, L. M. Hanks and Judson G. Rosebush.

National Salesmen's Crusade

New drive to get business out of the gutter was started a few weeks ago in Lincoln, Neb., by George W. Mason, president of the Nash-Kelvinator Corporation, stated the July 22 issue of the *Bulletin* issued by the Salesmens' Association of the Paper Industry, New York—Its motto is "Sales Mean Jobs". The crusade has been endorsed by the United States Chamber of Commerce, and by Chicago business and sales executives. It is spreading rapidly and getting results. Sales managers of paper mills are urged to join the crusade when it hits their cities. The crusade grew out of five simple facts, which are as follows:

Unemployment is a major national problem. The purchasing power of every family in the nation is influenced directly or indirectly by the purchasing power of every other family. The success of any manufacturer or any industry is directly or indirectly dependent upon the success of other manufacturers or other industries.

Most families still have the ability to buy, even though the purchasing power of many is either impaired or non-existent. It is true that millions of our citizens are unemployed, but it is also true that many other millions are at work.

If sufficient quantities of the products of our farms and our factories can be sold to those who are at work, the necessity for new production will create employment—and, consequently, purchasing-power—for those now without jobs.

The key position is occupied by the salesmen of America, because not only is it they who can seek out all possible buyers but, also, it is they who can stimulate the desires of those buyers to a point at which such desires outweigh the fears that have been keeping them from purchasing.

No single group of salesmen can do the job alone. But concerted effort by many groups of salesmen—representing many producers of goods and services—can so stimulate demand and public confidence that the ultimate result will be a constantly accelerated consumption of farm and factory products. Accelerated consumption makes way for accelerated production, which necessitates jobs that mean purchasing power.

Taggart Bros. Completing Improvements

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., July 25, 1938—Erection of the new warehouse addition at the Champion mill of Taggart Brothers is progressing rapidly and will be completed early in August, according to expectations. The steel partitions and brick foundations are already completed and work was started this week on the roof. The structure is being built by the H. K. Ferguson Company, of Cleveland. Supplies now stored at the old structure will be moved to the new building upon its completion.

Japan Produces 886,978 Tons of Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 20, 1938—The Japanese empire pulp production during 1937 totaled 886,978 metric tons, an increase of 84,413 metric tons over 1936, according to figures released by the Ministry of Agriculture. Of the total 1937 production, 829,684 tons represented pulp for paper making.

Philadelphia Paper Men To Play Golf

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 25, 1938—Announcement is made by Harry S. Platt, Philadelphia representative of Denney Tag Company, and chairman of the publicity committee of the Philadelphia Paper and Cordage Association, that the August Golf Tournament of the Association will be held on August 24 under the direction of E. L. Richards, chairman of the golf committee and donor of the Buffalo envelope trophy. The famous Pine Valley Course at Clementon, N. J., has been selected for the tournament. This championship course has for years been the mecca of all golfers in the east, and ever since the June tournament the Paper and Cordage golfers have been longing for another shot at the elusive greens among the Jersey pines.

Members of the association are permitted to bring as many guests as they care to invite, and anybody in the paper and cordage industry need only get in touch with some member of the Association, or E. L. Richards, 401 North Broad street, Philadelphia, and he will be given the opportunity to play this sporting course on August 24. Some of the non-golfing members are arranging to give their customers a treat by sending them guest tickets to this most popular of all golf outings.

After a day of golf, many of the players will gather for an informal dinner at Silver Lake Inn. President Joe Miller will be on hand with a party of friends to enliven the occasion and award the prizes.

Jerome F. Page Made Director

COLUMBUS, Ohio, July 25, 1938—Jerome F. Page, 2077 Parkhill drive, has been named a director of the Central Ohio Paper Company, 226 North Fifth street, it was announced, last week, by O. A. Miller, treasurer and chairman of the board.

Mr. Page, who succeeds K. D. Wood, one of the founders of the company and secretary, who succumbed early in July, has been associated with the company for 24 years and at present is vice president and sales manager.

The Central Ohio Paper was organized in Columbia in 1872 and now operates warehouses in Cleveland, Toledo, Dayton, Indianapolis, Detroit and Pittsburgh with branch offices in Lima, Akron, Wheeling, Huntington, W. Va., Fort Wayne, Ind., and New York City.

The company handles all types of paper for printing, writing and wrapping uses and in addition operates an envelope factory here with a capacity of 1,000,000 envelopes daily.

Other officers are A. M. Miller, president; F. E. Miller, vice-president, and R. W. Miller, vice-president and secretary.

Better Outlook for Box Boards

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 25, 1938—With the shoe manufacturers operating their plans to a greater extent, there is a demand for shoe boxes, which increases the call for box boards. Business in box boards has been quiet.

The prospect for more orders for paper stock appears to be better. Although no larger volume of business is reported, a number of grades have appreciated in value.

Waste Dealers To Meet on Coast

Joseph Schapiro, president of the National Association of Waste Material Dealers, Inc., has definitely approved and authorized the holding of a fall convention of this association in San Francisco on October 17, 18, and 19. Hon. Angelo J. Rossi, mayor of San Francisco has consented to serve as honorary chairman of a large representative committee which will be headed by H. L. Green of San Francisco, and the efforts of this committee will be supplemented by an advisory committee made up of Walter G. Swanson, general manager of the San Francisco Convention and Tourist Bureau and C. M. Vandeburg, director of publicity and promotion of the Golden Gate International Exposition. The above mentioned committees are making plans to entertain delegates and their ladies in such a way and to such an extent as to make the social and entertainment features of the convention such as will long be remembered by all of those who journey to the coast to attend this convention.

The association is now making up a list of those who will definitely attend the convention from eastern and mid-western territory and those in the trade whether members or non-members who are planning to attend are invited to register at Association Headquarters, 1109 Times Building, New York, at the earliest date possible because on all of the fastest trains to the Pacific Coast reservations must be made weeks in advance.

For additional information members of the trade should address their inquiries to the association at 1109 Times Building, New York, or to the N.A.W.M.D. Convention Committee, 16 California Street, San Francisco, Cal.

Swedish Timber Journal Issues Special

The Annual Issue of the *Swedish Timber and Woodpulp Journal 1938* has just appeared with 252 pages. It contains a great many interesting articles in both the Swedish and English languages. The annual numbers of the Journal are intended to give a survey of the preceding year from commercial and technical points of view and thus to have the character of a Year Book, reviewing productions, export and markets for the various product of the northern timber, pulp and paper industries.

In the issue of 1938 the technical development in the pulp and paper industries of the Scandinavian countries is dealt with in a very complete way. Technical questions and news are also dealt with. Of a more general nature are a description of the new Rockhammer Wallboard Mill, and The Modernization of the Husum Sulphate Mill.

The annual issue may be ordered from the A/B Svensk Trävaru-Tidning, Kungsgatan 17, Stockholm, Sweden. The price is 3s. 6d., postage included.

Pulp Mill Wins Damage Suit

ST. HELENS, July 25, 1938—A jury in circuit court here returned a verdict for the defendant in a suit brought by William Van Buren against the St. Helens Pulp and Paper Company in which $35,000 was asked as damages for alleged impairment of health while plaintiff was employed in the recovery room at the paper plant.

The jury arrived at the verdict on the first ballot in less than 20 minutes. The count was 11 to 1 in favor of the mill company.

OPACITY • WHITENESS • BRIGHTNESS

...and good appearance means OPACITY, WHITENESS and BRIGHTNESS in papers pigmented with TITANOX

Clean, bright, highly opaque bond papers in stocks, bonds, insurance policies, letterheads and other forms—that is the vogue of the day. Consumers insist on these features, and manufacturers answer their demand by using Titanox pigments in their better-grade papers.

Titanox pigments represent the maximum of whiteness, brightness and opacity obtainable in paper pigments and when used as fillers, they impart these characteristics to paper to an exceptional degree. Only a small amount is needed to produce desired results. Thus Titanox-pigmented paper combines the appearance, which is so necessary, with the strength that has always been a characteristic of good bond paper. In addition, papers pigmented with Titanox will retain their opacity, whiteness and brightness, because these pigments are chemically stable and inert, and do not discolor with age.

Titanox-A is pure titanium dioxide which is the whitest of all opaque white pigments. It is possible with a small amount of Titanox-A to make a 16 or 20 pound sheet as opaque and bright as a 24 pound or heavier unpigmented sheet.

Titanox-B, with high tinting strength and lower volume cost, is recommended wherever greater loading is permissible.

•

Our Technical Service Department will gladly furnish particulars

TITANIUM PIGMENT CORPORATION

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TITANOX

TRADE MARK

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Financing and Operation of Pulp and Paper Mills

General Construction News

Charlotte, N. C.—The Carolina Paper Board Company, Charlotte, organized to manufacture paper board products and allied specialties, has selected site in the rear of 528 Turner avenue and will begin work at once on new mill. It will be one-story, 80 x 220 feet, reported to cost over $60,000, with equipment. Plant will be developed for large capacity. General erection contract has been let to E. L. Bass & Brothers Construction Company, 708 Bainbridge street, Richmond, Va. It is expected to have new mill ready for service early in the fall.

Philadelphia, Pa.—The Sanitary Products Corporation, Lefevre and Edgemont Streets, Bridesburg district, manufacturer of paper plates, knives, forks, ice cream containers, etc., is considering the rebuilding of two-story plant almost completely destroyed by fire, July 17, with loss estimated at close to $100,000, including equipment. Reconstruction will approximate a like amount.

St. Paul, Minn.—The Minnesota Mining and Manufacturing Company, Forest and Fauquier streets, manufacturer of sand papers and allied products, coated roofing materials, etc., has superstructure under way for new four-story addition to mill, 150 x 300 feet, with foundations to provide for three additional floors at later date, and is awarding contracts for final completion of structure. An award for heating and piping installation has been made to the Harris Brothers Plumbing Company, Inc., 1603 Selby avenue, St. Paul. As previously noted in these columns, new plant unit will cost about $400,000, with equipment, with work to include certain improvements in present plant, as well as rearrangement of machinery. It is expected to have the new building ready for occupancy early in the fall. William M. Murphy & Son, New York Building, St. Paul, are general contractors. William L. McKnight is president.

Los Angeles, Cal.—The Western Transparent Bag Company, Inc., has been chartered with capital of $50,000, to take over and operate company of same name with local plant at 5333 South Riverside drive, manufacturer of special paper bags and containers, etc. James E. Buley is one of the incorporators of new company.

New Haven, Conn.—The National Folding Box Company, James and Alton streets, manufacturer of folding paper boxes and containers, has filed plans for one-story addition to plant, to be used as a mechanical shop extension. Superstructure will be placed under way at once. No estimate of cost has been announced.

Belmont, N. C.—The Belmont Box Company, lately organized to manufacture paper board boxes and containers for hosiery packing and distribution, has begun superstructure for new one-story plant on local site and will push the structure to early completion. Orders are being placed for necessary equipment and machinery, and plant will be developed for sizable capacity. It is estimated to cost in excess of $35,000, including equipment. As recently noted in these columns, new company is capitalized at $50,000, and is headed by A. C. Lineberger and J. M. Hatch, officials of the Hatch Full-Fashioned Hosiery Company, with local knitting mill. It is understood that a large part of output of the new plant will be used for hosiery products of the Hatch company mill.

St. Louis, Mo.—The Scharff-Koken Manufacturing Company, 7901 Michigan avenue, manufacturer of corrugated boxes and containers, has approved plans for new addition to plant, to be one-story, 60 x 100 feet, with extension, 40 x 40 feet. Erection will be placed under way at once. General contract has been awarded to the Fruin-Colnon Contracting Company, Merchants' Laclede Building, St. Louis. New unit is reported to cost close to $50,000, including equipment.

Carthage, N. Y.—The Taggart Corporation, Carthage, has erection in progress on new addition to local mill, previously referred to in these columns, operated in the name of the Champion Paper Corporation, specializing in the production of kraft paper products. Superstructure will be pushed to early completition. New structure will be one-story, 100 x 120 feet, and will be used for storage and distributing division. It is estimated to cost close to $45,000, with equipment. The H. K. Ferguson Company, Hanna Building, Cleveland, Ohio, is general contractor.

San Francisco, Cal.—The Crown Zellerbach Corporation, 343 Sansome street, manufacturer of general paper and paper board products, waxed and other processed papers, etc., with mills in Washington, Oregon and other points, reports that for the last fiscal year, ended April 30 last, a fund of about $3,700,000 was expended for mill additions and improvements, as well as for extensions and improvements in logging and timber land facilities. A certain quota of similar work will be carried out by the company during the company year, with total investment in buildings, equipment and operating facilities

undetermined at present time. Mills are now being operated on an improved production schedule.

Enka, N. C.—The American Enka Corporation, Enka, manufacturer of viscose rayon products, has completed erection of a new addition to mill, comprising a one-story unit, to be used for expansion in the chemical division. The structure represents an investment of about $60,000, and will be placed in service at once. General erection was carried out by Potter & Shackleford, Inc., Greenville, S. C. This is part of an expansion and improvement program at the mill started a number of months ago, as previously reported in these columns, and which will represent a total expenditure of about $500,000 for buildings, machinery and equipment.

New Orleans, La.—Lengsfield Brothers, Inc., 1101 Tchoupitoulas street, manufacturer of folding paper boxes and containers, cartons, etc., has work nearing completion on new one-story addition to plant and will place the unit in service at early date. It is estimated to cost close to $25,000, with equipment. General contract for erection was let recently to Caldwell Brothers & Hart, 816 Howard avenue, New Orleans.

Newcastle, Australia—The Masonite Corporation (Australia), Ltd., affiliated with the Masonite Corporation, Laurel, Miss., manufacturer of insulating board specialties, pressed board products, etc., has superstructure nearing completition on new mill at Raymond Terrace, near Newcastle, New South Wales, in course of erection for several months past, as previously reported in these columns, and expects to have the plant ready for operation in 30 to 60 days. New mill will cost about $450,000, with machinery, and will give employment to a large working force.

Paper Makers Directory of All Nations

The 1938 edition of the Paper Makers Directory of All Nations, published by Dean & Sons Ltd., London, England, bound in cloth and containing over 1000 pages has just been issued.

This Red Book of the Paper Industry, now in its 47th year of issue, is of special interest to all those engaged in the production, purchase, sale or distribution of paper, pulp and board, in the equipment of mill or factory, or in the supply of raw material in connection with the paper and allied trades, while its alphabetical arrangement makes it particularly easy of reference.

Following the incorporation of Austria in the German Reich this is the first issue in which the Austrian mills will be found included in the section dealing with Germany.

The directory gives particulars of the paper and board mills of Great Britain and Ireland and similar details concerning the paper pulp and board mills in British Dominions overseas and in Foreign countries; many useful lists connected with British paper trades; a comprehensive list of mill productions, arranged alphabetically in three ways:—(1) class of goods manufactured under more than 400 trade headings, (2) country of origin, (3) name of firm; and a classified index to advertisers forming a most useful buyers' guide.

The Paper Makers Directory of All Nations may be ordered from the Lockwood Trade Journal Company, 15 West 47th Street, New York at $7.50 per copy cash with order.

Will Probably Use Shortleaf and Loblolly

College Station, Tex., July 20, 1938

EDITOR PAPER TRADE JOURNAL:—

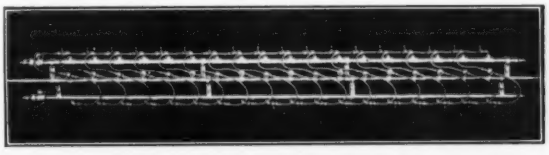
In your July 14 issue under the section, Construction, I note an error which was no doubt an oversight concerning the Southern pine species available for the Lufkin mill. The statement, "In connection with mill erection, company will consummate plans for extensive supply of Southern slash pine for pulpwood supply" is in error. Slash pine does not grow naturally west of the Mississippi River and is confined to the approximate area as shown on the attached map in red. The mill at Lufkin will no doubt use shortleaf and loblolly pine.

The Texas Forest Service has a number of small plantations of slash pine now growing in East Texas to test the adaptability of the species to our soils and climate. The attached picture shows a stand of slash pine of 1.3 acres, planted on the Kirbyville State Forest in 1936. At the time of the last measurements, which was June 15, 1937, the stand averaged 5.7 inches in diameter, 4½ feet from the ground, and was 35.1 feet high. The 1.3 acres contained 14 cords of wood. If future predictions can be based on past results, certainly slash pine is adaptable to locations in East Texas where the soil and climate is suitable.

Very sincerely yours,
E. O. SIECKE, Director.

Spraco Sheet Moistener

A new sheet moistening unit has just been announced by the Spray Engineering Company, 168 Central street, Somerville, Mass. Unusually high degree of atomization is claimed for the compressed air operated spray heads, which are so adjusted as



18 HEAD BATTERY MOISTENING UNIT BUILT EXPRESSLY FOR THE PETER J. SCHWEITZER PAPER COMPANY, ELIZABETH, N. J.

to provide uniform distribution over the entire width of the sheet.

The quality and volume of the spray can be adjusted within close limits, giving the operator extremely accurate control of the moisture sprayed on the sheet. Units are built up on order for any width sheet or for special requirements. The manufacturers will furnish complete information on request.

Opposed Impeller Series Pumps

Opposed impeller series pumps, in which two single suction impellers are mounted with the suction openings facing in opposite directions towards the end of the shaft, are described in Catalogue B-3, issued by the De Laval Steam Turbine Company, Trenton, N. J. In this type of pump not only is the impeller balanced hydraulically, but only two pairs of wearing rings are needed, the same as for a single-stage pump. Leakage from the second stage to the first stage is reduced by a labyrinth shaft sleeve and the fact that the short, stiff shaft requires only small clearance.

PAPER TRADE JOURNAL

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COMING EVENTS IN THE PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY. Fall meeting, Northland Hotel, Green Bay, Wis., September 8-10.

NATIONAL PAPER TRADE ASSOCIATION. Fall convention, Stevens Hotel, Chicago, Ill., September 19-21.

FOR WAGNER ACT AMENDMENT

Ideals and theories frequently appear attractive and desirable in themselves but fall far short of their sponsors hopes when put to any practical test. The fault is not necessarily in the idea but is more commonly in the method of application and the disturbance it causes in an attempt to quickly change the old into the new. The failure of the Roosevelt Administration to restore permanent prosperity may be attributed in part to impracticability. After several years of persistent experimenting the Federal Government ended its fiscal year on June 30th with another Treasury deficit—a record of eight consecutive years in the red.

A second attempt to spend our way to prosperity is now under way but the causes which are generally conceded to have been major factors in causing the depression still continue and among them are the current policies of this Administration. At the close of last year, William J. Kelly, president of the Machinery Institute pointed out in a study on "Savings and American Progress", that business buying must be encouraged if payrolls are to expand and consumer buying power is to increase. "National policies," said Mr. Kelly, "which discourage the accumulation of capital for launching new industries and improving and expanding old ones are largely responsible for the halting pace in the revival of consumer purchasing power."

National policies which interfere with and prevent the normal conduct of employer and employee relations have caused the loss of billions of dollars in profits of manufacturers and in wages of workers through strikes. Since its inauguration the National Labor Relations Board has failed to achieve the purpose for which it had been created, the just settlement of differences between employers and employees through arbitration. Because of its lamentable failure to foster arbitration and its substantial contribution to discord on such controversial subjects as wages, hours and conditions of employment, the National Association of Manufacturers is urging amendment of the National Labor Relations Act. This appeal is particularly timely at this date because of a ruling this month by the Board which is so absurd that it affects the right of free speech and sacrifices it to promote the growing power of trade unions. The particular case is that of a small shoe manufacturer in Maryland but the decision involves a principle which affects the entire United States. Briefly, the ruling of the Board states that an employer has been found guilty of violating the Wagner Act by the distribution to its employees of an anti-C.I.O. speech made by Congressman Clare E. Hoffman of Michigan. Clearly, this ruling of the Board is a violation of the Bill of Rights which guarantees the right of free speech and as such it is a case for the Supreme Court.

In urging amendment of the National Relations Act, the National Association of Manufacturers pointed out that the Congress of American Industry, sponsored by the Association made recommendations for three amendments to the Wagner Act at its session in New York last December. "In approaching amendments to the National Labor Relations Act," counsel of the Association said in part, "our position should be made clear. We are not suggesting an era of unrestricted warfare or that employers be licensed to use any devices they see fit to combat strikes or the organization efforts of labor. The major purpose of amendments we support is to discourage the more objectionable union abuses as they more directly affect employers and the public."

The amendments suggested by the Congress of American Industry were: "(1) The functions of government, as declared by President Roosevelt in settling the automobile strike in March 1934, should be only that of assuring that employees shall not be subject to coercion from any source. The National Labor Relations Act and similar state acts should be amended accordingly. (2) The National Labor Relations Act, and similar state acts, should be amended so that no employer could be penalized for failure to deal with any labor organization, organizing, supporting, or maintaining strikes of the following character among its employees: (a) without presentation of demands or grievances and reasonable opportunity for their consideration; (b) in violation of employment agreements, including agreements to accept an arbitration award; (c) to compel establishment of the check-off, or to prevent, compel or terminate the employment of any person because he is or

is not a member of any organization; (d) to prevent the use of materials, equipment or services; (e) to compel an employer to deal collectively with supervisory officials who represent the employer himself; (f) when accompanied by continuous and systematic acts of violence and intimidation; (g) sit-down strikes, or other strikes which involve illegal occupation of the property of others; (h) general strikes or strikes not in support of those in similar occupations in other plants in the same industry; (i) to cause the commission of an illegal act or the omission of a legal duty. (3) The definition of 'strikers' as 'employees', under the National Labor Relations Act, or similar state act, should be amended to distinguish between legal and illegal strikes, persons engaging in the latter not being eligible to participate in elections, to select representatives, or to be reinstated by order of the Board."

In conclusion the recommendation stated, "If labor had demonstrated any real disposition to correct its abuses in recent years, there might be some basis for expecting employers and the public to forbear and await relief on the assumption that labor itself will provide it as soon as it is fully organized. Such an expectation is contrary to both history and experience. In our judgment there will be little permanent improvement in business morale or confidence unless and until government again accepts the role of impartial umpire and proclaims to all groups alike that their efforts must be conducted within bounds of law, reason and fair play."

Tasmanian Newsprint Mill Wants Bounty

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 27, 1938—The incorporation in Tasmania of the Australian Newsprint Mills Proprietary Limited, with a capital of 4,000,000 shares of £1 each has been engaging the attention of the Australian Tariff Board for some time.

Application was made to the Tariff Board on behalf of the company for a bounty of £4 a ton on an estimated production of 27,000 tons. It was suggested that this bounty may be met by the imposition of a duty on imported newsprint in rolls sufficient to recoup the Commonwealth Treasury. The company is being promoted by certain leading Australian newspaper publishing companies and the Government of Tasmania.

To Start New Australian Paper Mill

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 27, 1938—It has been announced by the Associated Pulp and Paper Mills, Ltd., subject to maintenance by suppliers of plant and electric power of their promises of delivery, that the plant at Burnie, Australia, will commence production in August, according to reports from the office of the American Trade Commissioner, Sydney. Both pulp and paper will be manufactured, and the company states that it is possible they may have some soda pulp available for export over and above that consumed by the domestic paper industry.

Production Ratio Report

(These statistics are based upon paper production reports to the American Paper and Pulp Association.)

COMPARATIVE MONTHLY SUMMARIES

Months	1938(c)	1937(c)	1936	1935	1934
January	63.9%	90.3%	76.1%	65.8%	.....
February	68.7%	90.1%	77.9%	70.0%	.....
March	69.6%	90.3%	76.0%	70.5%	.....
April	68.3%	92.1%	82.3%	70.0%	.....
May	69.0%	90.6%	81.6%	69.4%	.....
June	65.8%	87.3%	80.7%	72.3%	.....
July	.....	81.8%	77.3%	64.9%	.....
August	.....	82.9%	81.5%	70.9%	.....
September	.....	78.6%	80.5%	71.9%	58.2%
October	.....	73.5%	87.6%	75.6%	64.7%
November	.....	61.9%	88.0%	75.3%	61.7%
December	.....	54.5%	85.9%	71.2%	59.6%
Year Average	.....	80.6%	81.3%	70.5%	.....
First 28 weeks	67.4%	89.2%	78.7%	68.8%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1938		CORRESPONDING WEEKS, 1937	
*June 11	64.5%	June 12	88.2%
*June 18	66.1%	June 19	89.2%
*June 25	67.4%	June 26	88.6%
*July 2	68.7%	July 3	85.2%
*July 9	57.9%	July 10	69.8%
*July 16	75.8%	July 17	87.6%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks					
Ratio Limits	June 11, 1938	June 18, 1938	June 25, 1938	July 2, 1938	July 9, 1938	July 16, 1938
0% to 50%	111	110	99	102	117	61
51% to 100%	193	194	203	191	167	152
Total Mills Reporting	304	304	302	293	284	213

* Subject to revision until all reports are received.
(c) Basic capacity data have been adjusted to correspond with ratings reported by individual companies.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours", were as follows:

Mos.	1938 (e)	1937 (e)	1936	1935	Mos.	1938 (e)	1937 (e)	1936	1935
Jan.	55%	80%	61%	61%	July	.....	67%	69%	59%
Feb.	61%	86%	67%	67%	Aug.	.....	74%	75%	65%
Mar.	60%	87%	68%	67%	Sept.	.....	70%	76%	69%
Apr.	57%	89%	70%	61%	Oct.	.....	66%	82%	76%
May	58%	86%	68%	61%	Nov.	.....	56%	79%	70%
June	56%	75%	68%	65%	Dec.	.....	46%	74%	60%

Week end. June 11, 1938—58%
Week end. June 18, 1938—53%
Week end. June 25, 1938—59%
Week end. July 2, 1938—62%
Week end. July 9, 1938—37%
Week end. July 16, 1938—60%

(e) Basic figures revised to include new members of the National Paperboard Assn.

Mid-States Gummed Paper Co. Changes

T. H. Mittendorf, who has been director of sales, at Mid-States Gummed Paper Company, for the past several years has just changed his field of endeavor as of July 15 to re-enter the correspondence school business where he spent the early years of his business career.

In the meantime, Irving McHenry, president of the company will take over Mr. Mittendorf's duties, assisted by Herbert Ross, who will have charge of the sales on the Mid-States Really Flat Gummed Papers and Green Core Cloth Tapes. William Belz will have charge of sales on Green Core Sealing Tape. Stewart Knabe will have charge of printed gummed tape and Burton Lee Trodson will have charge of the advertising and sales promotion work.

Mittendorf leaves with the good will of Mid-States Gummed Paper Company and best wishes for continued success in his new field of endeavor.

GULF WINS

1ST, 2ND, 3RD AT INDIANAPOLIS!

Winner Floyd Roberts averaged 117.2 M.P.H. in the 500-mile classic.

Wilbur Shaw averaged 115.5 M.P.H. to finish second.

Chet Miller averaged 114.9 M.P.H. to finish third.

Record-breaking drivers use GULFPRIDE OIL!

All three winners of the Indianapolis Memorial Day Race used—not special racing castor oils—but regular, stock Gulfpride . . . certified by the AAA Contest Board to be the identical oil sold by Good Gulf dealers everywhere!

Here's what the winners say about Gulfpride:

"Perfect lubrication provided by Gulfpride Oil played an important part in helping us win first, second, and third places in the 500-mile Memorial Day Race here at Indianapolis. Unfaltering performance of our engines throughout the gruelling race enabled us to attain faster average speeds than ever before had been achieved at this speedway."

{Signed} Roberts, Shaw, Miller

These three all-time record-smashing performances testify to Gulfpride's ability to stand up under punishment. That's why Roberts, Shaw, Miller and many other prominent racing drivers choose Gulfpride over even special racing oils. The reason is that Gulfpride is the world's only 100% Pure Pennsylvania oil refined by the Alchlor process, *in addition to* conventional methods.

This same refining process is used in the preparation of Gulf's finest industrial lubricants. Thus, operators of steam turbines, air compressors, Diesel engines and many other types of industrial equipment can secure for their engines and machines the same protection against friction, wear and repair expense that Roberts, Shaw and Miller received from Gulfpride Oil when they made three all-time records . . . Gulf Oil Corp., Gulf Refining Company, Gulf Bldg., Pittsburgh, Pa.

GULF INDUSTRIAL LUBRICATION

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Lithographic Paper*

By Robert F. Reed[1]

Abstract

The principal conclusions that can be drawn from the work are:

1. *Chemical wood papers for multicolor offset lithography should be made with an absolute minimum of beating and jordanning.*
2. *A fairly large directional difference in formation of paper, as indicated by the difference in folding endurance with and across the grain, is desirable.*
3. *Printing in an atmosphere of constant relative humidity is a great help in avoiding register troubles, but control of temperature is equally important.*
4. *Paper maintains its dimensions best during printing if its initial moisture content is 0.5 to 1.0 per cent higher than the minimum equilibrium moisture content for the press-room atmosphere.*

Some progress has been made in solving the practical problem of conditioning paper to meet the requirements for moisture content in excess of hygrometric equilibrium. Equipment has been developed that will add moisture uniformly to paper in the web, after drying and calendering. Thus the paper mill can supply paper for use in an air-conditioned pressroom, which has a moisture content of 0.5 to 1.0 per cent above hygrometric equilibrium with the pressroom atmosphere. Such paper is ready for printing as soon as it adjusts itself to the pressroom temperature, without further conditioning.

For use in plants without air-conditioning, preconditioned paper is of advantage because conditioning in the pressroom will usually take place through loss rather than gain of moisture, and the paper will retain less of the press moisture during printing, and will be free from weavy edges.

Where preconditioned paper is not available, it can be assumed that on the average, the paper will be too dry, and must be conditioned by adding moisture. There are two methods of doing this which will provide the necessary 0.5 to 1.0 per cent excess moisture content:

a. A separate paper-conditioning and storage room may be maintained at a relative humidity 5 to 10 per cent above the pressroom atmosphere. The higher relative humidity may be obtained by maintaining the same dew point as in the pressroom at a temperature 5-6 deg. F. lower. This method, of course, is only suitable in plants which have air conditioning.

b. A new type of paper-conditioning machine may be used, which is totally enclosed and which is equipped to permit recirculation of air and controlled addition of the excess moisture to the paper. Equipment of this type is the only resort in plants which do not have air conditioning.

In the days before the invention of coated paper it was common practice to print high grade work, especially fine line etchings and stipple work, on dampened paper. This practice still exists in the printing of art subjects, both lithographs and engravings. With the development of halftone block printing on a commercial scale, dampening of paper was out of the question and necessity brought forth coated paper. Then for twenty years or so lithographers struggled along in a losing fight until the invention of offset lithography and the almost simultaneous adoption of photographic methods which resulted in the process known as photolithography.

During this period lithographers adapted the halftone process to their purposes, but, like the letterpress printers, they found that half-tone printing required very smooth-surfaced paper, and practically necessitated the use of coated paper. With offset lithography, in which the printing was performed by the rubber blanket, coated paper was no longer necessary. In fact the ability to print half-tones on a variety of paper surfaces gave offset lithography a distinct advantage over letterpress printing, which it has held ever since.

The early claims that any kind of paper could be printed offset were soon discovered to be without much foundation. The nature of the impression and the character of the ink placed definite requirements on paper. Early rubber blankets quickly developed a tacky surface unsuitable to printing on super and coated papers. The relatively stiff inks and high speeds required paper of strong substance, free from lint or loosely-bound fibers. The metal plates were sensitive to acids, alkalies, or grit in the paper. While offset printing was done with much less pressure than letterpress printing, the impression was uniform, with no relief between cuts, and made necessary careful conditioning of paper to insure perfect flatness. The fact that the printing plate was a single

* Presented at the meeting of the Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry, Kalamazoo, Mich., Jan. 20, 1938.

[1] Member TAPPI, Director, Department of Lithographic Research, University of Cincinnati, Cincinnati, Ohio.

sheet of metal obviated the possibility of shifting cuts to secure register, possible in letterpress printing, and responsibility for good register was placed largely on the paper.

Offset lithography has been in existence about thirty years. During this time there have been many improvements in the offset press itself, and in plates, rollers, inks, blankets, and paper. Speed and sizes of presses have been greatly increased, and quality of printing improved. This evolution has placed more and more stringent demands on all equipment and materials used, including paper. Development of suitable papers has been one of the most important factors but has been accomplished largely by the trial and error method. The need for a systematic study of paper from the standpoint of use requirements in offset lithography has long been indicated and such a study was initiated at the Bureau of Standards in 1930 under the sponsorship of the Lithographic Technical Foundation. This work is far from complete. So far nothing has been discovered that is absolutely new. Most of the findings simply corroborate what was previously known or suspected. The value of the work lies principally in the fact that it has extended and clarified our knowledge of the behavior of paper and has enabled a more logical and complete solution of the register problem to be found.

Physical Properties of Paper

It is elementary knowledge that cellulose fiber is hygroscopic and that it swells or contracts with gain or loss of moisture; that the moisture content of fiber depends on the relative humidity of the atmosphere; that stretch and shrinkage of paper depends on the nature and distribution of the fiber; that lithographic paper should have a minimum tendency to change in moisture content and therefore in dimensions with changes in relative humidity. The manufacture and handling of lithographic papers in general has been carried out with this knowledge. Lithographers almost invariably have hung their paper in the pressroom atmosphere in an effort to bring it to hygrometric equilibrium before printing. In some plants air-conditioning equipment has been installed to prevent fluctuations in relative humidity. However, it has been recognized that knowledge was lacking as evidenced by the occurrence of unaccountable difficulties. A preliminary survey including some thirty-one of the larger lithographic plants showed that misregister was by far the most serious difficulty encountered. Misregister resulted from incorrect press conditions as well as from faulty paper, but the paper factor in misregister was least understood.

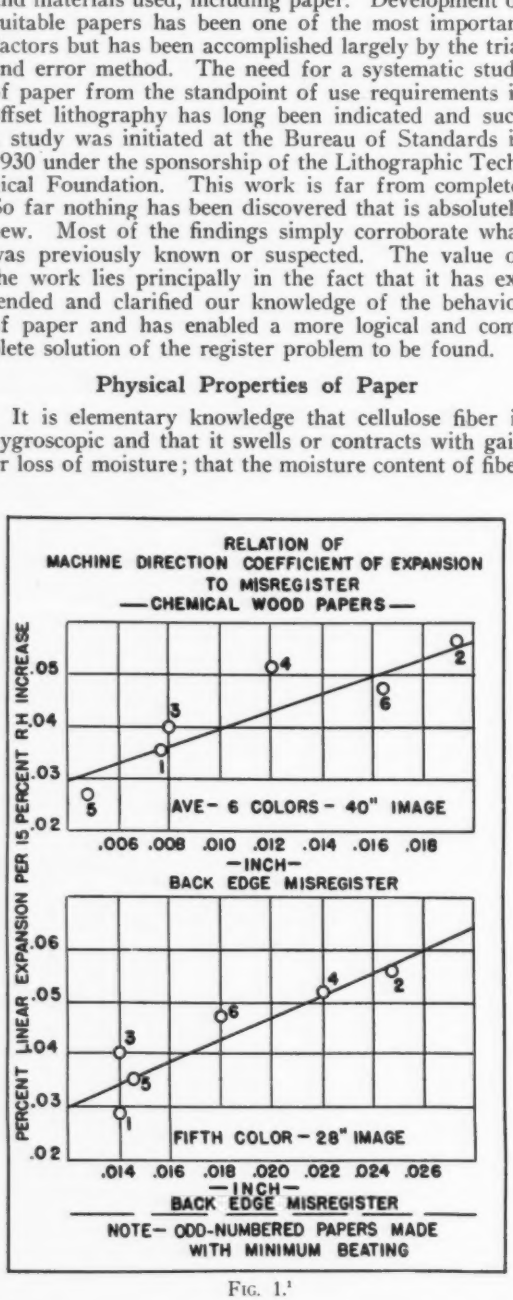

FIG. 1.[1]

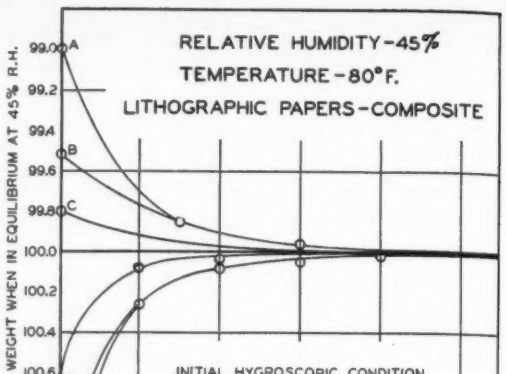

FIG. 2.[2]

Rate of conditioning for papers with different moisture contents.

Paper as a Cause of Misregister

The question of the effect of fiber treatment on register was first investigated. Four series of experimental papers were prepared from chemical wood fiber by three different mills, each series representing at least two degrees of beating and jordanning. These papers were conditioned in an atmosphere of 45 per cent relative humidity from the dry side in the usual manner, tested in the laboratory, and then used in actual printing experiments. In three out of the four series the ratio of folding endurance in the machine direction to that in the cross direction was

[1] See Charles G. Weber, "Relation of Paper Properties to Register in Offset Lithography", Research Paper No. 730, Bureau of Standards Journal of Research, Vol. 13, Number 5, November, 1934.

[2] For Fig. II to V, see Weber, C. G., and Snyder, L. W., "Reactions of Lithographic Papers to Variations in Humidity and Temperature", Research Paper No. 633, Bureau of Standards Journal of Research, Vol. 12, Number 1, January, 1934.

considerably greater for the sample having minimum fiber treatment. Expansion in the machine direction for a given change in moisture content was found to be least in all samples having minimum fiber treatment. Fig. 1 shows the results of two printing tests, one a six-color, and the other a five-color job. The odd-numbered papers were the ones having a minimum of beating and jordanning, while the others had received considerably more fiber treatment.

Time of conditioning for single sheets was also studied and the results are shown in Fig. 2. It will be seen that these papers, all of about 70 pounds basis weight, reached practical equilibrium in about 40 minutes regardless of their initial moisture contents.

The effect of direction and extent of conditioning on the moisture content of the papers was next investigated. Jarrell (*1*) in 1927 showed that there is a lag in the equilibrium moisture content of paper, and moisture content depends on the direction in which paper approaches equilibrium with the atmosphere. Weber and Snyder (*2*) repeated and extended Jarrell's work and studied also the effect of temperature changes on moisture content at constant relative humidity. The effects of all changes in moisture content were correlated with resulting changes in dimensions. Fig. 3 shows the variation in equilibrium moisture content of chemical wood offset papers when equilibrium is approached from opposite directions.

Figure 4 shows that moisture content decreases slightly as temperature increases, even though the relative humidity remains constant.

Figure 5 shows that dimensional changes are practically proportional to changes in moisture content of paper.

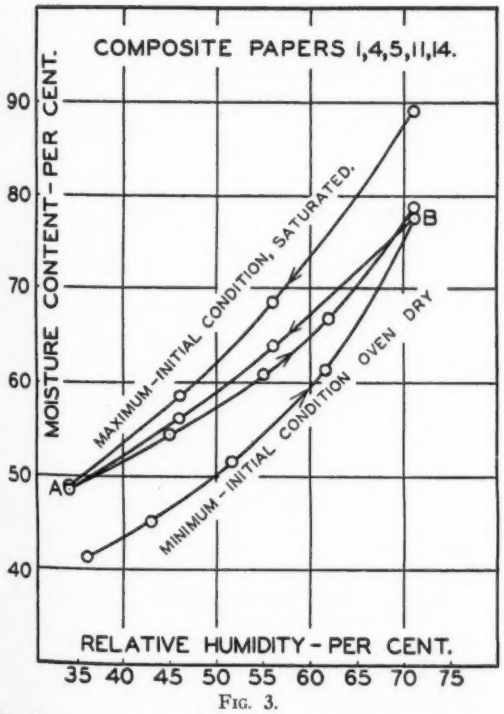

FIG. 3.

Equilibrium moisture content of papers at different relative humidities.

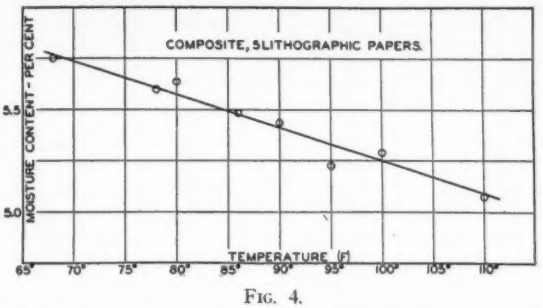

FIG. 4.

Relation of temperature to equilibrium moisture content of paper with constant relative humidity 45 per cent.

With these relationships in mind, it was a simple matter to draw the following tentative conclusions:

1. Control of temperature is a factor in air-conditioning where the control of paper dimensions is required.
2. It is possible for paper to vary as much as one per cent in moisture content with proportional dimensional changes, and still remain in hygrometric equilibrium with an atmosphere of constant relative humidity.
3. Paper having a moisture content corresponding to the minimum curve in Fig. 3 will tend to absorb moisture on the press and expand proportionately, while paper with a moisture content corresponding to the maximum curve will tend to lose the press moisture quickly by evaporation.
4. Paper having a non-uniform moisture distribution with consequent distortion may be completely in equilibrium with the atmosphere surrounding it. Thus, in some cases it would be impossible to remove waviness or "tight edge" by simply reconditioning paper in the pressroom atmosphere.

In order to test these conclusions, it was necessary to make actual conditioning and printing tests and to check the reactions of the sheets by means of careful measurements and moisture-content determinations.

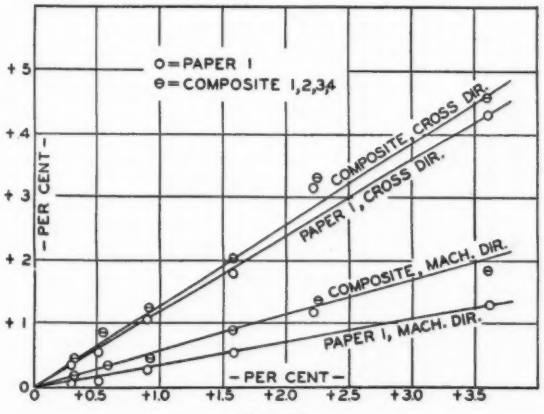

FIG. 5.

Influence of moisture-content variations on dimensions of lithographic papers. Comparison of paper No. 1 with the average of No. 1, No. 2, No. 3, No. 4. Values at the left are dimension changes as variation from dimensions at 27 per cent R. H. and 80 F. temperature.

Fig. 6[3] shows the moisture-content changes in five samples of the same offset paper during conditioning by various methods, and the subsequent printing of a nine-color job. It will be seen that those samples conditioned at relative humidities higher than the pressroom atmosphere remained most nearly constant in moisture content during the printing.

Fig. 7 shows reproductions of the printed register marks on a seven-color job printed on five lots of the same offset paper conditioned by different methods, together with measurements of misregister of succeeding colors from the first color, in decimal fractions of an inch. For comparison, the Paper Hygroscope (*3*) readings taken on each sample at the start of the run are also shown. The reading on Sample No. 21 indicates an initial moisture content about 0.5 per cent above the equilibrium moisture content, and this sample yielded the best register.

Testing Instruments

Where facilities and experience are available, as in the paper mill, control of preconditioning can be obtained by means of automatic instruments such as the Verigraph, with check moisture determinations. Where paper must be conditioned by hanging of sheets, the paper hygroscope in conjunction with a hygrometer is most convenient. Paper hygroscope readings were shown in Fig. 7. This instrument simply indicates the variance of the hygrometric state of the paper from equilibrium with the surrounding atmosphere, and is almost fool-proof.

But, as has been indicated, paper may be apparently in the desired hygrometric condition and still be wavy or otherwise distorted. Ordinary moisture determinations will not indicate this condition and even careful observation is insufficient. Wavy paper will be further distorted by the printing impression and the print will be different in dimensions from the image of the printing plate. If this happens on the first color of a multi-color job, the impressions will be out of register, although no one will find it out until the second color has been printed, when it is too late to apply a scientific remedy. This trouble can be avoided only by checking the dimensions of the first color impression against the dimensions of the plate image, and a special Register Rule has been developed for this purpose.

[3] For Fig. 6 and 7, See Weber, C. G., and Geib, M. N. V., "Treatment of Offset Papers for Optimum Register", Research Paper No. 859, Bureau of Standards Journal of Research, Vol. 16, Feb., 1936.

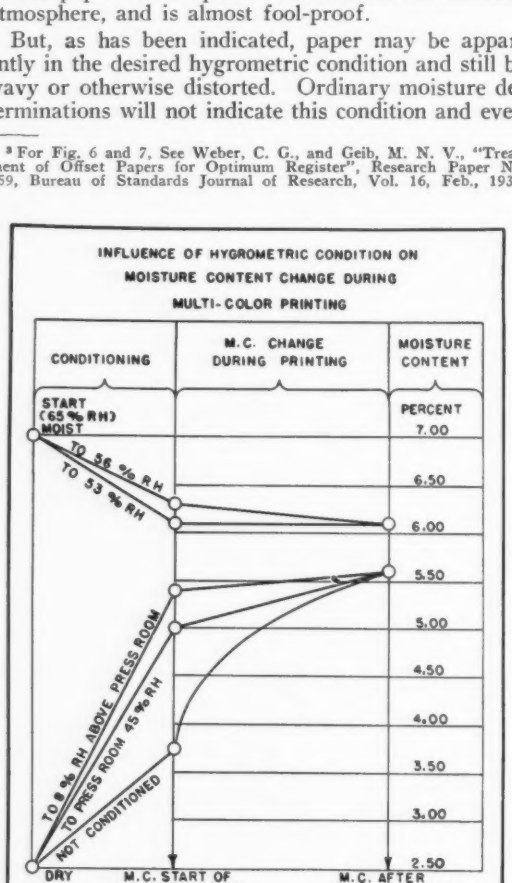

Fig. 6.

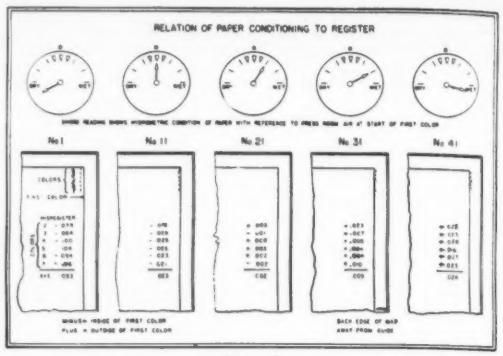

Fig. 7.

Improvements in offset papers and the elimination of causes of misregister are making possible improved offset lithography at higher speeds, and the increasing use of three- and four-color presses. Further research is needed particularly in the field of fiber treatment and sheet formation. Further improvements with regard to decreasing the "expansivity" of paper with respect to atmospheric humidity are already indicated.

Literature Cited

(1) Jarrell, T. D., "Effect of Atmospheric Humidity on the Moisture Content of Paper," *Paper Trade J.* 47 (July 21, 1927).
(2) Weber, C. G. and Snyder, L. W. "Reactions of Lithographic Papers to Variations in Humidity and Temperature." Research Paper No. 633, *Bur. Stds. J. Research* 12, No. 1 (January, 1934).
(3) "Modern Paper Conditioning Methods and the Paper Hygroscope", Tech. Bull. No. 1, Lithographic Technical Foundation, New York, N. Y.

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A Survey of Quality Control and Inspection in Paper Mills*

A Report by TAPPI Production Management Committee, Louis T. Stevenson, Chairman [1]

Abstract

This report presents the general results of a questionnaire sent out by the Production Management Committee of the Technical Association of the Pulp and Paper Industry.

Quality control is made effective by setting standards for product and processes and then seeing that these standards are maintained.

The functions of the technical department are stated and discussed. Its relation to quality control is developed. An organization chart is presented to illustrate present practice in organization of the quality control function.

The suggestion is made that the report be discussed thoroughly and returned to the Production Management Committee to formulate a suggested method for organizing for quality control in a paper or paperboard mill.

Early Organization Problems

When Queen Anne in 1686 granted a charter to the British Company of White Papermakers, their organization problems were simple. Papermaking was a craft. The proprietor was a journeyman papermaker who took his turn at the vat. He was his own *quality control department.* The hand-made papermakers of today still take pride in the individuality of their product. It is a far cry from the half ton a day made in a hand-made mill to the 400 tons that may be made on one recently installed paper machine. Even to make only 10 tons a day is a much more complex proposition than is met in the hand-made mill.

One of the "hot spots" of present day manufacturing practice is control of quality. It is a "bromide" to say that a uniform product is worth more than an irregular one. If you do not believe it, ask any paper salesman!

General Practices

Current management practice requires that standards for finished product and for intermediate operations and products be set by management. This practice starts with the raw materials coming to the mill from various sources. It follows through to the product delivered to customers. Quality control in action is setting attainable and useful standards and then seeing that these standards are maintained. The product must be designed to meet the customers' use requirements or else it will not sell. It must be maintained at the predetermined quality if it is to stay sold.

The Functions of the Technical Department

Four years ago the management division held a symposium on the subject, "The Application of Technical Control to Production." This brought out the necessity for coordinated team work for quality control between the technical men and the operators. The present study is the result of the need for adequate organization for quality control.

Our questionnaire has brought out clearly the main functions of a technical department, whether it consists of one man in a small mill or many men in a large mill. They are:

1. To assist management in setting standards for process and finished products.
2. To assist in maintaining the quality of the product.
3. To investigate and report on complaints.
4. To assist in developing new products.
5. To conduct research.
6. To assist management in the elimination of wastes.

The Problem

In setting standards management usually acts in consultation with the operating, sales and technical divisions. Complaints may be referred to the technical division to check certain facts of use requirements or production history. Product development and research are definitely functions of the technical division in consultation with the sales division and management. Elimination of wastes, such as white water control, calls for the technical knowledge and experience available in the technical division. Carrying on the tests incidental to this function is closely akin to the work required by quality control function. This function is therefore generally combined with quality control in the control department. It seems to be logical that all of these functions except possibly those under the control department should report direct to management through the technical director. With these other functions, quality control has some kinship. But the actual maintenance of quality is clearly a function of the operating division. The technical man should not adjust machine unless he is in the operating division.

These questions then develop:

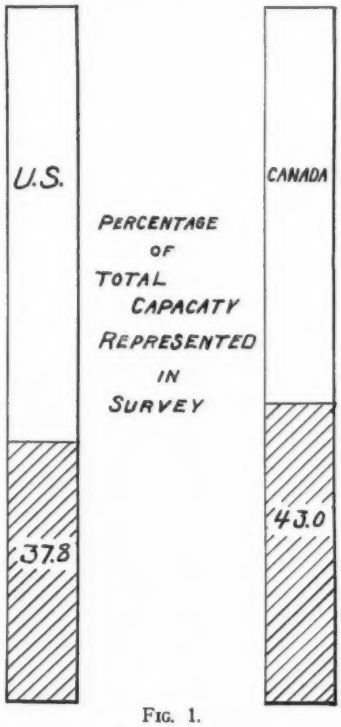


FIG. 1.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 21-24, 1938.

[1] 60 E. 42nd Street, New York, N. Y.

1. How should quality control be organized?
2. Where do standards originate?
3. Where is the authority and responsibility for maintaining these standards to be placed?
4. What should be the authority and responsibility of the technical department in the maintenance of these standards?

Methods of Analysis

To establish what the present practices are in the industry a questionnaire was sent out by the committee to a list of 220 mills. The response has been very satisfactory to the committee. The replies represent the practices prevailing in an annual capacity of 6,484,090 tons, 37.8 per cent of the estimated total United States capacity and 43 per cent of estimated Canadian capacity is represented. (See Fig. 1). The largest mill represented makes 680 tons daily and the smallest 10 tons. Between these extremes are represented many different types of mills which make practically every kind of paper.

In analyzing the questionnaire the questions were analyzed to bring out for each question:

The number of mills making the reply to the question.
Total daily capacity of these mills.
Daily capacity of largest mill.
Daily capacity of smallest mill.
Average of daily capacity of all mills making reply.

It is felt that this procedure establishes a mathematical basis for the exercise of judgment as to the different replies to a given question. In this procedure each mill was taken as a unit. For example, one of the larger organizations furnished the information for a typical mill although it operates many mills. From another we have received completed questionnaires for two different kinds of paper mills.

Because each mill was a unit and no weighting was given for the relative importance of the business organizations operating these mills, the results tend to minimize the importance of the larger producers and to increase that of the smaller ones.

Offsetting these considerations is the fact that our questionnaire was sent to a limited group of mills. From the nature of the list it is rather biased by the inclusion of a preponderance of efficient mills.

These offsetting factors namely the minimizing of the importance of large producers and the emphasis or efficient producers will *tend* to cancel each other. But how far they will go in the process of cancellation, it is not possible to say.

An analysis by tonnage presents complications where a large and diverse number of grades are included. For example, a 100-ton chipboard mill may require a fairly simple quality control organization, while a 40-ton high grade writing mill may require quite an elaborate one.

In the main, the replies have been predominantly one way. In one instance, where the replies have been inconclusive, on the basis of tonnage, these have been separated into specialty mills and standard mills. Those mills known to us as making a fair proportion of standardized production, such as newsprint, were considered as Standard Mills. The detailed figures of the analysis of the questionnaire results are published as an appendix to this report. The following is based on replies to this questionnaire.

Organization

Fig. 2 is a diagramatic presentation of the consensus of present practice in the organization of the quality control function. The technical director is responsible to the mill manager but he must work closely with the superintendent. Sometimes he works directly under the superintendent but the consensus of opinion is for him to work *closely* with the superintendent, but to be ultimately *responsible* to the mill manager. If the business is a large one operating a number of mills, the technical department may be organized with a technical director who is in charge and is associated with the headquarters management group. At each mill there is a division of the Technical department with a technical supervisor in charge. He reports directly to the mill manager.

Under the technical supervisor are the various control testers, testing pulp and paper on each shift. All reports of tests are immediately and currently made available to:

1. The opposite operating section
2. The superintendent
3. The technical director and, if necessary
4. The mill manager.

Where the operation is relatively small the technical director or the chief chemist, as he is frequently called, handles much of the routine control testing and is responsible to the mill manager. He must, however, work closely and harmoniously with the superintendent. There must be daily and sometimes hourly consultation between them.

Coordination Necessary

In order to maintain independent control tests, it seems necessary to have the testers responsible to management through the technical director. However the necessity for team work with the production division is obvious. This has been promoted by the following procedures:

1. All quality control tests are made immediately available to the interested production foreman.
2. Close personal contact is maintained between the control testers, technical director and the production division.

Another device supplementing these practices is to have regular meetings of a committee made up of the mill manager, the technical director and the superintendent.

Interpretation of Data

All quality control original data is made available at once to the interested operating foremen and to the technical director. If substandard performance or quality is indicated, the technical director, mill manager and the general superintendent should be notified promptly. It should be the duty of the technical director to interpret and evaluate original data obtained by the control testers.

Tests

The technical director authorizes the number and types of tests to be made. These are authorized after consultation with the superintendent or other representatives of the operating divisions. Tests should be designed to make the standards effective.

Standards

"Unless definite standards are established, intelligent inspections cannot be realized." (2)

Product and process standards are authorized by the mill manager generally in consultation with the sales, production, and technical divisions. Suggestions for standards are received from:

[2] Cornell, Wm. B., *Industrial Organization and Management* (The Ronald Press Co., New York, 1928). Page 417.

1. Sales department.
2. Quality control department.
3. Production personnel.
4. Occasionally from technical societies such as TAPPI.
5. Customer complaints.

The standards are subject to regular current revision to meet competition and changes in use requirements.

Personnel

A competent staff is required for the technical department. The replies indicate that the present practice requires on the average one man in the technical division for every 14.64 tons of product made.

Technical men are taken from within the organization when possible. A very high percentage of producers get them where they can, either from within or without their own organization.

The men in the technical department are distributed according to educational attainments as follows:

1.	Grammar school education only	6.4%
2.	High school education only	51.5
3.	Liberal Arts college	8.5
4.	Chemical Engineering	18.6
5.	Chemist	6.2
6.	Mechanical Engineering	2.0
7.	Other college graduates	6.8
		100.00

The mills agree almost unanimously that the control department provides a suitable training for men who are later transferred to the sales or operating departments. Some of the mills make it a practice to "feed" these departments with personnel from the technical department.

Incentives

About 20 per cent of the mills representing a little less than one-third of the tonnage reported have "incentives" in the technical department. About 30 per cent of the mills making one-third of the tonnage make available additional training for men in the control department.

Testing

The bulk of the reporting mills use TAPPI testing methods either exclusively or to a very large extent.

Most of the mills carry through extensive tests both for process control and on the finished product.

Conclusions

This statement of the net result of the questionnaire seems to establish a basis for the organization of the quality control function in this industry. We feel that the organization outlined by the mills in their replies is logical and satisfactory. It is functional and therefore not dependent upon individual personalities. One individual may be made responsible for several functions in a small unit. In a large unit the personnel may be disposed among the functions according to individual capacity and the requirements of the job.

A sufficient cross section of the industry is represented so that the results should be representative of the whole industry.

The committee is grateful that such a large and typical tonnage capacity is represented in this study. The large proportion of the industry represented is significant because it indicates great interest in the subject.

It is hoped that this study will bring out full and free discussion by all those interested in the subject of organization for quality control.

I recommend that after the discussion here the matter be referred back to the Production Management Committee with a view to bringing in a recommendation for a TAPPI Suggested Method for organizing the quality control function.

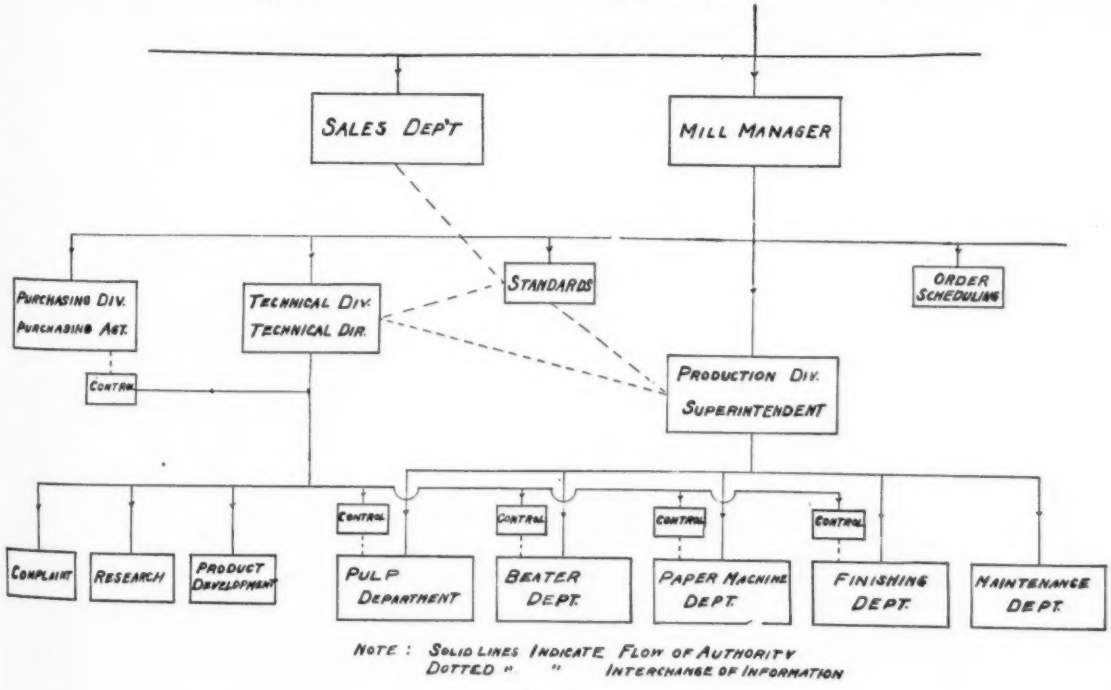


FIG. 2.

Suggested Organization Chart for Technical Division of a Paper Mill

Comparison of Sulphite Pulps from Fast-Growth Loblolly, Shortleaf, Longleaf and Slash Pines*

By G. H. Chidester [1], J. N. McGovern [2] and G. C. McNaughton [3]

Abstract

The results from pulping loblolly, shortleaf, longleaf, and slash pines of similar growth characteristics (rapid-growth material) point to the conclusion that a variation of 10 per cent in springwood content in any one species results in a greater difference in pulp quality than is exhibited between the different species examined.

The relative quantities of springwood were found to increase from the butt to the tops of all four species examined and the density varied in a reverse fashion.

All strength properties of the pulps, excepting tear resistance, improved with an increase in springwood content.

The results further emphasize that pulp quality can be very definitely influenced by selecting the growth type of wood used.

Previous work at the U. S. Forest Products Laboratory has described the dependence of the yield and quality of sulphite pulp from loblolly pine upon the growth characteristics of the wood (*1*). These studies showed that while the factors of density, growth rate, springwood and summerwood contents, and abnormal wood were to a large extent interrelated, the most important factors affecting the pulp yield and quality were the springwood and summerwood contents. The springwood pulp gave a lower yield, but a higher bursting strength, lower resistance to tear, and was of a lighter color. Because of the collapse to a ribbon-like form of the thin-walled fibers of the springwood, which are of greater diameter than the summerwood fibers, the springwood pulp was more pliable and formed denser sheets having a finer texture, smoother surface, and lower porosity than the summerwood pulp. The effect of growth rate alone was most evident in the higher density and lower porosity of the pulp sheets from wood of fast growth. Another important factor was the presence of small amounts of compression wood and associated abnormal wood frequently present in the butt logs of the fast-growth material. This abnormal material lowered the yield and strength properties of the pulps.

The present study was undertaken to compare the yield and quality of pulp obtained from loblolly, longleaf, shortleaf, and slash pines, and to ascertain whether any dissimilarities in the results were due to differences in species or growth characteristics.

Experimental Part

Chips approximately 5/8-inch in length were prepared in the usual manner from the loblolly pine (*Pinus taead*), longleaf pine (*Pinus palustris*), shortleaf pine (*Pinus echinata*), and slash pine (*Pinus caribaea*) logs from southern Louisiana.

Chips from the top, middle, and butt logs of the four species were pulped separately under identical conditions by using four cylindrical, perforated, corrosion-resistant baskets (2.5 pounds pulp capacity), each containing a different species, uniformly spaced

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 21-24, 1938.

[1] Member TAPPI, Senior Engineer, Forest Products Laboratory, Forest Service, U. S. Dept. Agriculture, maintained at Madison, Wis., in cooperation with the University of Wisconsin.

[2] Member TAPPI, Asst. Technologist, Forest Products Laboratory.

[3] Member TAPPI, Senior Engineer, Forest Products Laboratory.

TABLE I.—PHYSICAL CHARACTERISTICS OF FOUR FAST-GROWTH SOUTHERN PINES AND YIELD AND BLEACH REQUIREMENT OF SULPHITE PULPS PREPARED FROM THEM

Species	Number of digestions	Tree	Position in tree	Springwood content Per cent	Growth rate Rings per inch	Density (O. D. weight per green volume) Lbs. per cu. ft.	Amount of mild compression wood Per cent	Amount of heartwood Per cent	Yield of Pulp: Total Per cent	Yield of Pulp: Screened Per cent	Yield of Pulp: Screenings Per cent	Bleach requirement for 85 parts blue Per cent
Shortleaf	3	B	Top	72	4.8	24.5	0	0	49.5	49.1	0.4	19
Shortleaf	3	B	Middle	65	5.8	26.8	0	.9	52.1	51.5	.6	22
Shortleaf	3	B	Butt	52	6.7	32.3	13.5	1.1	51.2	50.4	.8	18
Slash	3	R	Top	60	2.9	26.9	1.8	0	48.5	48.2	.3	18
Slash	3	R	Middle	56	3.0	28.6	2.0	.1	50.5	49.8	.7	20
Slash	3	R	Butt	44	3.5	32.6	4.5	.2	49.9	49.0	.9	17
Loblolly	3	2	Top	67	2.8	25.8	13.0	0	48.3	48.1	.2	20
Loblolly	3	2	Middle	66	2.5	25.9	6.5	.3	50.3	49.4	.9	21
Loblolly	3	2	Butt	49	2.5	30.0	16.5	1.0	50.1	48.9	1.2	20
Longleaf	3	AA	Top	66	4.6	25.1	2.1	1.5	48.1	46.2	1.9	21
Longleaf	3	AA	Middle	59	5.0	27.2	0	4.0	50.8	49.0	1.8	20
Longleaf	3	AA	Butt	53	5.6	30.9	0	4.3	50.8	49.1	1.7	18
AVERAGE RESULTS FOR SPECIES												
Shortleaf	9	B		63	5.8	27.9	4.5	.7	50.9	50.3	.6	20
Slash	9	R		53	3.1	29.4	2.8	.1	49.6	49.0	.6	18
Loblolly	9	2		61	2.6	27.2	12.0	.4	49.6	48.8	.8	20
Longleaf	9	AA		59	5.1	27.7	.7	3.3	49.9	48.1	1.8	20
AVERAGE RESULTS FOR POSITIONS IN TREE												
Four species	12		Top	66	3.8	25.6	4.2	.4	48.6	47.9	.7	20
Four species	12		Middle	62	4.1	27.1	2.1	1.3	50.9	49.9	1.0	21
Four species	12		Butt	50	4.6	31.5	8.6	1.7	50.5	49.3	1.2	18

TABLE II.—CHEMICAL CHARACTERISTICS OF FOUR FAST-GROWTH SOUTHERN PINES

Species	Tree	Cellulose	Alpha-cellulose	Lignin	Pentosans		Solubility in			
					Total	In cellulose	Alcohol benzene	Ether	1% NaOH	Hot water
		Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
Shortleaf	B	62.2	47.2	26.4	12.1	9.5	3.0	2.3	11.2	2.1
Slash	R	60.5	45.7	27.3	12.3	8.5	2.7	1.4	11.2	1.9
Loblolly	2	59.3	43.3	28.1	12.6	9.3	3.8	2.5	13.4	3.1
Longleaf	AA	58.8	44.3	27.9	12.4	10.2	4.3	2.9	11.1	2.4

in a 50-pound sulphite digester (*2*). The digester proper was charged with chips from the middle logs of the different species. Three check digestions were made on each of the four woods in the baskets.

In all instances the following digestion conditions were employed:

Acid concentration	Total sulphur dioxide	5.0 per cent
	Combined sulphur dioxide	1.2 per cent
Method of heating digester	Indirect steam	
Temperature schedule	Time to 110 deg. C	2 hours
	Time at 110 deg. C	1.5 hours
	Time to 140 deg. C	1.5 hours
	Time at 140 deg. C	4.5 hours
	Total digestion time	9.5 hours
Maximum pressure	75 pounds per square inch	

The yield and the bleach requirement were determined for each pulp. Strength tests, by both pebble mill and beater processing, were made on a mixture of the three pulps from the three check digestions of the top, middle, or butt logs from each species. These determinations followed methods standard at the Forest Products Laboratory (*3*).

The growth characteristics of the different woods, the yield, and the bleach requirement of the pulps are given in Table I. Table II gives the average chemical composition of the different trees. Beater strength tests corresponding to freeness values of 800 cc and 550 cc (Schopper-Riegler) are given in Table III. Figs. 1 to 4, inclusive, show graphically the relation of the strengths at the two foregoing freeness values to the springwood content.

Results and Discussion

Characteristics of Wood Samples

From Table I it may be noted that the springwood content of the shortleaf pine was consistently high while that of the slash pine was low. The shortleaf and longleaf pines had somewhat slower rates of growth than the other two species. In accordance with the low springwood content, the density of the slash pine was the highest. The density of the shortleaf pine, however, was higher than would be expected from its high springwood content, possibly a result of its slower rate of growth.

The average values for the top, middle, and butt logs show the decreases in springwood content and rate of growth and increases in the density and amounts of compression wood and heartwood toward the butts of the trees.

Yield of Pulp

Although the greatest difference in the total yield of pulp obtained from the four different species was only slightly more than 1 per cent, shortleaf pine gave consistently the highest values. The screened pulp yield from longleaf pine was slightly lower than the others owing to the greater amount of screenings resulting from its greater heartwood content. The yields consistently followed the trend of the cellulose and alpha cellulose contents of the woods (Table II).

A comparison of the average yields from the top, middle, and butt logs shows the total yields from the middle logs to be slightly higher than from the butt logs, and approximately 2 per cent higher than from the top logs. The normally lower yield of pulp from springwood than from summerwood is not clearly indicated in the results from the middle and butt logs probably because of the greater amount of extractive material usually found in the butt logs. A slight increase in screenings resulted from the increase in heartwood content toward the butt logs.

TABLE III.—BEATER STRENGTH TESTS OF FAST-GROWTH SOUTHERN PINE SULPHITE PULPS FROM FOUR SPECIES

Species	Number of digestions	Position in tree	Bursting strength, Freeness S.R. 800 cc. (Points per pound per ream 25x40—500)	Bursting strength, Freeness S.R. 550 cc. (Points per pound per ream 25x40—500)	Tearing strength, Freeness S.R. 800 cc. (Grams per pound per ream)	Tearing strength, Freeness S.R. 550 cc. (Grams per pound per ream)	Folding endurance, Freeness S.R. 800 cc. (Double folds)	Folding endurance, Freeness S.R. 550 cc. (Double folds)	Tensile strength, Freeness S.R. 800 cc. (Lbs. per sq. in.)	Tensile strength, Freeness S.R. 550 cc. (Lbs. per sq. in.)	Solid fraction, Freeness S.R. 800 cc.	Solid fraction, Freeness S.R. 550 cc.	Processing time, Freeness S.R. 800 cc. (Minutes)	Processing time, Freeness S.R. 550 cc. (Minutes)
Shortleaf	3	Top	0.95	1.21	1.63	1.34	1150	3500	5600	9000	0.48	0.54	52	120
Shortleaf	3	Middle	...	...	...	...	...	...	...	...	...	...	...	...
Shortleaf	3	Butt	.85	1.03	2.18	1.80	800	2300	5200	6900	.49	.54	61	119
Slash	3	Top	.90	1.13	1.76	1.26	1500	2250	5600	8200	.52	.56	43	106
Slash	3	Middle	.89	1.04	1.59	1.28	1100	2100	5600	7800	.50	.55	78	151
Slash	3	Butt	.80	.93	1.41	1.19	450	1300	5000	7300	.49	.55	35	78
Loblolly	3	Top	.89	1.11	1.49	1.20	950	2350	6000	8400	.50	.56	50	130
Loblolly	3	Middle	.80	1.00	1.66	1.36	900	2300	5000	7000	.46	.53	62	130
Loblolly	3	Butt	.75	.94	1.76	1.40	750	1500	4600	6600	.49	.54	60	141
Longleaf	3	Top	.92	1.13	1.62	1.29	800	2300	5700	7000	.48	.53	50	110
Longleaf	3	Middle	.92	1.13	1.77	1.24	900	1300	6000	8400	.48	.53	70	162
Longleaf	3	Butt	.80	1.00	1.91	1.52	650	1250	4800	6600	.47	.52	52	112
AVERAGE RESULTS FOR SPECIES:														
Shortleaf	6	Top Butt Top	.90	1.12	1.90	1.57	975	2900	5400	7950	.48	.54	56	120
Slash	9	Middle Butt Top	.86	1.03	1.59	1.24	1017	1883	5400	7767	.50	.55	52	112
Loblolly	9	Middle Butt Top	.81	1.02	1.64	1.32	867	2050	5200	7333	.48	.54	57	134
Longleaf	9	Middle Butt	.88	1.09	1.77	1.35	783	1617	5500	7333	.48	.53	57	128
AVERAGE RESULTS FOR POSITIONS IN TREE:														
Four species	12	Top	.92	1.14	1.62	1.27	1100	2600	5725	8150	.50	.55	49	117
Four species	9	Middle	.87	1.06	1.67	1.29	967	1900	5533	7733	.48	.54	70	148
Four species	12	Butt	.80	.98	1.82	1.48	662	1588	4900	6850	.48	.54	52	112

Pulp Strength

Only the beater strength tests of the pulps are given in Table III. Although the values were somewhat different, the pebble mill strength tests showed, in general, similar trends to those obtained in the beater. However, since the pebble mill data were less complete, the beater tests were selected to show the trends obtained with varying springwood content in the wood from the tops, middles, and butts (Figs. 1 to 4).

In plotting the various strength values against the springwood content it is realized that although the factors of springwood content, density, growth rate, fiber dimensions, and structure, are quite closely interrelated, any one factor might vary independently. This fact probably accounts for discrepancies which sometimes appear. The general trend of the results, however, seems to justify this procedure of plotting.

Bursting Strength

Fig. 1 shows the increase in bursting strength corresponding to the increase in the springwood content from the butt to the top logs for each of the four species. At the lower freeness the average increase amounted to approximately 0.1 point for an increase of 10 per cent in the springwood content. The bursting strengths obtained from the different species for a given springwood content, however, varied somewhat less than this amount. It therefore appears that the variations in strength of the different pulps were more likely the result of differences in growth characteristics than differences in species. Similar trends are shown by the values for both 800 and 550 cc freeness values.

Tearing Strength

Except for slash pine the tearing strengths decreased with an increase in the springboard content (Fig. 2). Both the loblolly and slash pines, however, gave lower tearing strength values from the lower portions of the trees than would normally be expected from the springwood contents. These low values, however, are not inconsistent when the density of the summerwood is considered. The lower densities for loblolly and slash pines indicate the presence of abnormal growth often associated with even small amounts of compression wood in the butt logs of the fast-growth material.

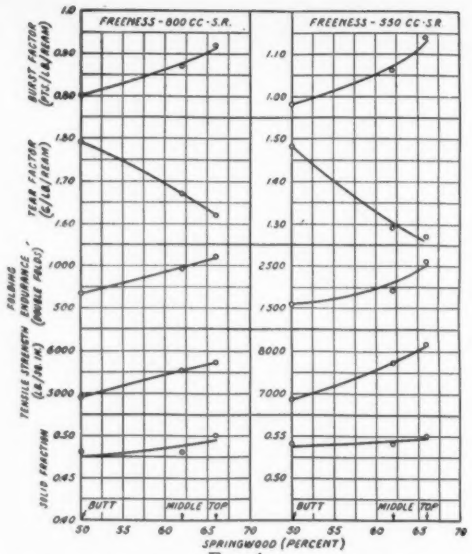


Fig. 4.

Average Physical Properties (Beater Tests) of Sulphite Pulps From Four Species of Southern Pines From Different Positions in the Trees.

The decrease in the tearing strength with an increase of 10 per cent in the springwood content (with normal summerwood) was approximately 0.2 gram per pound per ream.

Double Folds

For all species the folding strength increased with an increase in the springwood content, the increase at the lower freeness value amounting to approximately 700 double folds for an increase of 10 per cent in springwood (Fig. 3). In spite of the fact that low values were obtained for longleaf pine at the lower freeness it is doubtful whether the variations in folding strength due to species are any greater than those corresponding to a difference of 10 per cent in the springwood content.

Average Properties of the Pulps From Different Portions of the Trees

Fig. 4 shows the average properties of the pulps obtained from all four species corresponding to the

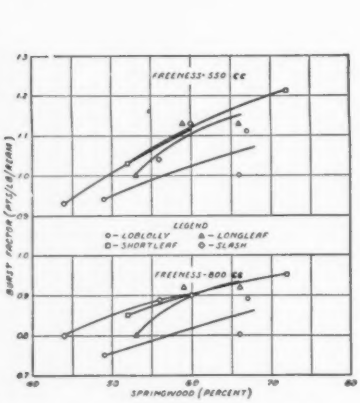


Fig. 1.

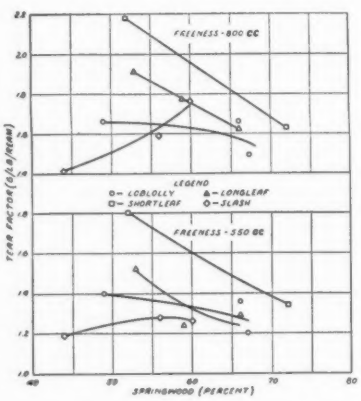


Fig. 2.

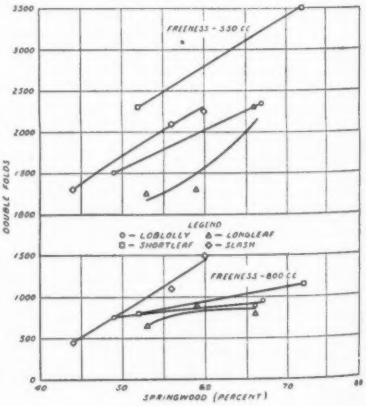


Fig. 3.

Fig. 1. Relation of Bursting Strength (Beater Tests) to Springwood Content. Fig. 2. Relation of Tearing Strength (Beater Tests) to Springwood Content. Fig. 3. Relation of Folding Strength (Beater Tests) to Springwood Content.

springwood contents in the top, middle, and butt portions of the trees. As the springwood content increased with the height in the tree, the tearing strength decreased and all the other pulp properties improved.

Literature Cited

(1) *Paper Trade J.* 103 (11):36-40 (Sept. 10, 1936).
(2) *Paper Trade J.* 103 (20):29-42 (Nov. 12, 1936).
(3) Forest Products Laboratory Manual of Standard Testing Methods for Pulpwood, Pulp, Stuff and Paper (Mimeographed report). Forest Products Laboratory, Madison, Wis.

Recausticizing and Lime Recovery at Bogalusa*

By J. P. Rubush [1]

Abstract

The 350-ton continuous recausticizing and lime recovery system recently installed in the sulphate mill of the Gaylord Container Corporation, Bogalusa, La., has been in successful operation for several months. Features of the equipment, arrangement and operation are briefly reported and embody some departures from general practice. A new type of causticizing unit followed by one thickener and two filter stations in series result in advantageous flow and control features.

The new continuous recausticizing and lime recovery system at Gaylord Container Corporation, Bogalusa, La., has been in operation for the past three and one half months and definite operating conditions have been established. This installation embodies several interesting improvements in flow sheet and design which mark departures from conventional systems and equipment now employed, and results have demonstrated a definite, increased economy and ease of operation.

Considerable operating data have been collected, but will be made the subject of a later, more complete and detailed paper. For the present, the system will be briefly described with a general summary of operating results of interest to the industry.

Design Conditions

Previous to this, the recausticizing system of the plant was of the batch type with a capacity of 250-270 tons a.d. pulp per day. The general increase of the mill capacity necessitated consideration of ways and means to extend the recovery system also. For reasons of modernization, increase of capacity, and economy of labor and chemicals, the Gaylord Container Corporation decided to convert to the continuous method of recausticization with lime recovery.

The problem presented in the design of this particular plant was continuously to convert clarified green liquor to digester cooking liquor and to utilize as much existing equipment as possible. The conditions of capacity were established at 310 tons of pulp per twenty four hours with a maximum production of 350 tons of pulp daily. Based on chemical requirements, the quantity of white liquor was calculated to be 100 cubic feet per ton of pulp. The Swenson causticizing system has been designed on the basis of these various requirements and conditions of operation with the view of effecting improvements wherever possible.

The chemistry of the process remains unchanged and, therefore, will not be discussed as this is familiar to all. Certain physical changes and improvements are obtained and will be discussed later at appropriate points.

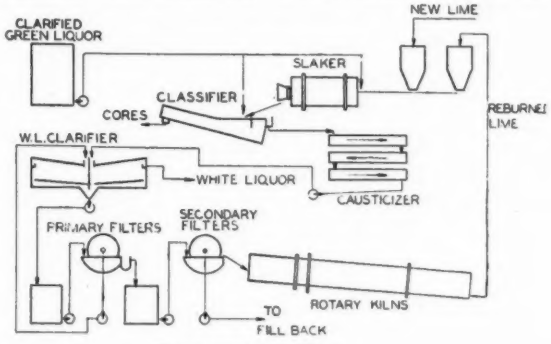
Flow of Materials

A brief description of the flow through the plant follows. A portion of the clarified green liquor is supplied to the lime slaker along with a controlled flow of reburned lime and the new lime required for make-up. The slurry from the slaker is discharged into a classifier and the remaining part of the clarified green liquor is added at this point. Impurities in the form of solid particles thrown out of the system are discharged from the classifier, and the slaked lime and liquor are discharged to the causticizer. The causticized liquor and sludge are pumped to the feed well of the white liquor clarifier.

From this point the system differs from the conventional systems installed to date, in that the underflow from the white liquor clarifier is fed directly to a rotary vacuum filter. The filtrate from this filter is returned to the feed well of the white liquor clarifier. The clear overflow from the clarifier is discharged to white liquor storage tanks and later pumped to the digester room. The cake from the caustic liquor or primary filters is repulped with water and fed to secondary filters; the cake from these filters is then conveyed to rotary kilns. The filtrate from the secondary filters is used for fill-back in the dissolving tanks on the recovery furnaces.

Equipment, Arrangement and Operation

The causticizing section of the system, consisting of lime storage bins, lime feeders, conveyor, slaker, classifier, and causticizer is conveniently located in



DIAGRAMMATIC FLOW

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 21-24, 1938.

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one building. The operator is able to control operations not only from analyses of the various materials, but also from direct observations because the arrangement provides a full view of the equipment from the control points near the slaker. Each unit is supported on foundations or steel structures clear of the floor level so any leakage or spillage is quickly detected and material losses are avoided. Walkways and operating platforms are arranged to promote safety and ease of operation.

Fresh and reburned lime are fed from separate bins through calibrated feeders, to obtain a controlled ratio between new and reburned lime. This mixture is fed through a screw conveyor to a slaker of the revolving drum type. Sufficient green liquor is added to slake the lime and this mixture is discharged to a classifier.

A convential, submerged, screw-type classifier acts as a simple and effective means of continuously purging the system of rejects consisting of silica and undesirable lime cores. The overflow, consisting of liquor and slaked lime, flows by gravity to the causticizer.

Departing from the conventional, agitated causticizing tanks, usually heated by steam coils, a three-section horizontal reaction unit is employed with gravity flow between the units installed at different levels. Each section is equipped with a slowly-moving, spiral ribbon agitator. The heating is done through 5/8-inch steel sidewalls by individually controlled, steam jackets and no steam coils are required.

This unit, extensively used in the chemical industry, is new in this application and has proven successful in maintaining the correct conditions for the causticizing reaction. The agitation supplied is sufficient to hold the sludge in suspension as it forms without dispersing fine particles which would be difficult to settle. Contrary to rapid agitation methods, the spiral ribbons lift the calcium carbonate particles slowly toward the surface and shower them down through the liquor as the sludge is pushed toward the discharge end. During the process, the causticizing reaction proceeds with formation of more calcium carbonate on the particles. In numerous crystallization processes, these conditions have promoted the best crystal growth, and in the causticizing operation, in a similar manner, larger calcium carbonate particles are produced, which results in an easy-settling, free-filtering sludge.

The ratio of heating surface to volume of liquor in the causticizer is high, and it is possible to obtain any desired temperature, and by means of nine individual steam jackets on three decks, the temperature can be controlled progressively throughout the causticizing operation. Liquor and sludge flow from deck to deck by gravity and are pumped from the bottom deck to the white liquor clarifying tank.

Separation of the white liquor from the sludge is accomplished by a combination thickening and filtering operation. The thickener employed is a single compartment unit, fifty feet in diameter. A spiral rake mechanism continuously rakes the thickened sludge to the discharge cone at the center of the settler. The flow of liquor is radial in all directions from the central feed well, and the clear white liquor overflows into the launder extending completely around the tank. The launder is visible at numerous points around the periphery, through inspection openings, to enable the operator to check the conditions in the thickener and prevent the overflow of any cloudy liquor when operating at peak capacities. The thickened sludge is pumped to a surge tank and from there is fed to the primary filters at full strength without dilution.

Two rotary vacuum filters, eight foot diameter by ten foot face, are installed for this service and provide a generous excess of capacity. The density of the sludge fed to the filters is normally 28 to 32 per cent suspended solids, but it is possible to vary this density from 15 to 35 per cent suspended solids without materially affecting the operation of the filters. Since the filtrate from the primary filters is returned without dilution to the settler, and the density of the sludge from these filters determines the yield of white liquor for the digesters from a given volume of green liquor; therefore, the density of the sludge from the settler to the primary filters is not important and does not have to be controlled in the operation of the system, but may vary through wide limits without affecting the results.

The cake from the primary filters runs from 57 to 62 per cent total solids, averaging about 60 per cent total solids, which is equivalent to 53 per cent undissolved solids. This condition represents a high yield of white liquor, with a minimum return of white liquor as diluted wash liquor to the dissolving tanks, and consequently a minimum flow of green liquor through the green liquor clarification system, and slaker, classifier, and causticizer, for a given production of white liquor.

The filtrate from the primary filters, returned to the settler for clarification, contains about 0.25 to 0.50 per cent suspended solids, but only clear liquor from the clarifier is overflowed to the white liquor storage tanks. The cake is repulped at the filters with water and is discharged to a surge tank from where the slurry is pumped to the secondary filters.

Existing sludge recovery equipment, consisting of four small rotary vacuum filters and two rotary kilns, is utilized for secondary sludge washing and lime reburning. A new kiln, eight feet in diameter by one hundred twenty five feet long, of welded construction, was installed. This kiln is provided with a high pressure gas burner, which results in favorably low temperatures at the extreme discharge end and a better heat distribution in the kiln. The results of the lime reburning have been uniformly satisfactory, averaging from 86 per cent to over 90 per cent available calcium oxide and for several periods have averaged equal to or better than the available calcium oxide in purchased lime.

Recapitulating, noteworthy features of the continuous causticizing system are:

A new type of causticizer unit employing slow agitation to obtain large particle size and desirable sludge characteristics.

Visible control of all operations.

Reduced volume of liquor in process.

Efficient and economical alkali and lime recovery.

The use of one thickener followed by two filter stations in series, returning the filtrate from the first filter station to the thickener for maximum yield of undiluted white liquor.

While the desired capacity has been obtained with uniformly successful operation, the ultimate capacity has not been definitely established to date. As the regular operation continues, more data will be collected and organized to be available in the near future.

Review Of The Paper Industry Literature

Abstracts Compiled By the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson and Clarence J. West, Chairman of the Committee.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C. for 10 cents each. Send currency, not stamps.

Paper Specialties

Jacquard Board. Wochbl. Papierfabr. 68, no. 30: 566; no. 31: 584-5 (July 24, 31, 1937); B. I. P. C. 8: 131.—The question is asked whether or not it is possible to make pasted jacquard boards and electrical insulating boards from 3-4 paper webs which compare favorably with the products of board machines. The answers indicate that such a procedure is possible and that an excellent product results, provided that a strong, smooth, and uniform paper is used for this purpose. The most important prerequisite for a good jacquard board is that it is not sensitive to varying moisture contents in the storage and working rooms; this property can be imparted by a special size, the nature of which is not disclosed.—C.J.W.

Studies on the Manufacture of Insulating Board. O. R. Sweeney and L. K. Aronld. Iowa Engrg. Expt. Sta., Bull. 136, 75 p. (1937).—Excellent light-colored and strong insulating board was made from cornstalk pulp cooked in water at atmospheric pressure for 3 hr. The addition of re-pulped news print (up to about 20 per cent) improved the strength of the board. Optimum conditions for sizing the insulating board with wax were determined; because of the large amount of wax size required, however, wax sizing was considered impractical for ordinary purposes. A forming machine previously developed made excellent unlaminated insulating board with highly interlaced fibers. The desired forming consistency for maximum strength was found to depend on the speed of board formation. High-density boards were made by cold pressing followed by drying or by drying under pressure in a hydraulic press. Surface coatings were applied to boards by three different methods and were found to increase the strenth. Drying tests were conducted using racks, a hydraulic press, and a steam-heated shelf-drier under a variety of external conditions. The effects of temperature, humidity, pulp composition, and type of drying equipment were studied. The air infiltration through cornstalk insulating board may be reduced by increasing the paper content, by increasing the density, or by applying a surface coating of paper pulp. A device for determining the amount of "dusting" in an insulating board was developed. The factors affecting dusting are discussed.—A.P.-C.

Development of Forming Machine for Insulating Board. L. K. Arnold. Paper Industry 19: 935-938 (Nov., 1937).—A description of an insulating board forming machine developed at the Iowa Engineering Experiment Station. The machine comprises a steel suction box 30 in. wide by 8 ft. long over the top of which passes a continuous wire screen; pulp is pumped into the head box from which it flows onto the suction box, forming a pool at the rear end from which the screen emerges continuously. Board made on this machine was entirely free of any tendency to laminate.—A.P.-C.

Coating of Boards. Wochbl. Papierfabr. 68, no. 39: 751: no. 42:797; no. 43:819 (Sept. 25, Oct. 16, 23, 1937); B. I. P. C. 8: 131.—Information is sought with regard to equipment and machinery required for the manufacture of coated boards, and how durable effects can be obtained. The boards are chiefly used for boxes. The machinery comprises a color mixer, a sheet coating apparatus with dryer, a calender, and sheet brushing equipment. The installation should be made by an expert; before starting, the suitability of the boards in question for coating should be tested. Durable coating effects can be obtained with casein, china clay, or satin white; animal glue or starch derivatives give also good results. It is very important that the surface of the boards is uniform and without lumps; the coating mixture must be homogeneous without sand or other foreign particles. The coat must be applied evenly over the entire surface of the board.—C.J.W.

Wrinkles in Boards. Wochbl. Papierfabr. 68, no. 27: 509; no. 30: 566 (July 3, 24, 1937); B. I. P. C. 8: 131.—The inquirer asks for a remedy for preventing the formation of wrinkles in a special kind of board made from better grades of waste paper in a thickness up to 1.2 mm. Beating degree and consistency are kept uniform. The answers suggest incorrect beating (either too free or too slow), incorrect felt arrangement of felts with insufficient dewatering ability, too smooth rolls, incorrect pressure for type of pulp employed, and too thick pulp sheets as possible reasons.—C.J.W.

Paper Storing

Correct Management of the Paper Warehouse. Papier-Ztg. 62, no. 86: 1461-2 (Oct. 27, 1937); B. I. P. C. 8: 162.—Practical hints for storing, keeping inventory and reordering supplies, and handling and carrying of paper are given. Attention is drawn to the necessity of giving all employees certain fundamental instructions, such as differentiating felt and wire side, paper machine and cross direction, etc.—C.J.W.

Storing of Paper. Wochbl. Papierfabr. 68, no. 38: 720; no. 41: 778; no. 43: 819 (Sept. 18, Oct. 9, 23, 1937); B. I. P. C. 8: 162.—The inquirer is confronted with the problem of adapting an existing room, brick construction, as a storage room for papers with and without mechanical pulp. The main requisite of a suitable storage room is uniform temperature; it should not be drafty or too dry through heating. Otherwise the material of construction does not play any special role. No moisture should be absorbed from the ground, hence paper should never be stored directly upon the floor, nor too close to windows or the heating equipment. An air conditioning system is desirable, but is not an absolute necessity for cheap papers. The manufacturer should ask his customers what temperatures and humidities they employ in their establishments and try to condi-

tion his paper to their requirements. It is advisable to store sheeted paper in the wrappers which offer protection from dust and light.—C.J.W.

Machinery

Modern Wet Part. J. Pillgram-Larsen. Papir-J. 25, no. 23: 325-328 (Dec. 15, 1937); B. I. P. C. 8: 204.—The construction of the wet part of a Norwegian fine paper machine is described. The new features include a special shake by Bertrams, so that either the breast roll alone, the breast roll and the first wire part, or the breast roll and the entire wire section can be shaken. All rolls are equipped with S.K.F. bearings; the press part is of the conventional type, including two regular and one reversed press. The new installation is driven by electrical sectional drives.—C.J.W.

Anti-friction Bearings on Paper Machines. P. Wiesenthal. Papier-Ztg. 62, no. 101: 1753-1754 (Dec. 18, 1937); B. I. P. C. 8: 202.—Nearly all paper machines constructed during recent years have been equipped with anti-friction bearings, particularly those rolls which are not driven by a special drive, but carried along by either wire or felts. Each roll on the paper machine offers a special bearing problem; the author reviews briefly the most important of them.—C.J.W.

The Cleaning of Fine-mesh Metal Tissue. E. Belani. Pappen-Holzstoff-Ztg. 44 (in Kartonnagen-Papierwaren-Ztg. 41), no. 43: 463-4 (Oct. 22, 1937); B. I. P. C. 8: 152.—Reference is made to different chemical reagents for scouring wires, carbon tetrachloride finding a wide application, although it has certain drawbacks, such as being not indifferent to iron, copper, and aluminum, and having a strong narcotic effect in closed rooms. Preference should be given to the chlorine derivatives of ethane and ethylene, which are not inflammable, and do not attack the ordinary metals, although they also exert a narcotic effect.—C.J.W.

Regulating the Width of the Sheet Upon the Vat of the Board Machine. Papier-Holzstoff-Ztg. 44 (in Kartonnagen-Papierwaren-Ztg. 41), no. 43: 462-3 (Oct. 22, 1937); B. I. P. C. 8: 148.—When the full width of the vat of a board machine is not required, cut squirts may be used to cut off a strip on either side which is returned to the stuff chests; in any case the edges must be sharp and not rough. In older vats the usual custom is to cover the sections not required with a strip of smooth oilcloth, rubber, metal, or similar substance, from which the pulp slides off. These can readily be removed when the full width is again needed. When the same width is always employed, the ends of the cylinder can be covered with asphalt lacquer; however, this can not be removed later on.—C.J.W.

Fourdrinier Paper Machine. Walter Voith, Hermann Voith and Hanns Voith (trading as the firm of J. M. Voith). Brit. pat. 466,931 (June 8, 1937).—Pulp from the flow-box passes between vanes, or through a distributor roll, between lips to the wire cloth at the breast roll that is adjustable both vertically and horizontally.—A.P.-C.

Adding White Water to Paper Pulp. Albert E. H. Fair. Brit. pat. 467,691 (June 22, 1937).—That part of the white water from a fourdrinier machine containing mainly short fibers is separately collected and distributed, e.g., with a filler, onto the pulp on the fourdrinier wire.—A.P.-C.

Refining Paper Pulp Stock. Cowles Co. Brit. pat. 466,689 (July 6, 1936).—Claim is made for a continuous refiner, in which an impeller projects the stock centrifugally against perforated screen plates; rotating scrapers attached to the impeller exercise a grinding action on the pulp deposited on the screens, through which the accepted stock passes.—A.P.-C.

Devices for Indicating Fluctuations in Moisture Content of Paper Sheets. A. F. Brough, P. R. Puleston and Watford Engineering Works Ltd. Brit. pat. 468,005 (Feb. 24, 1936).—The web of formed paper, cardboard, etc., is passed between a sound-wave generator and receiver, the received waves being converted into electrical waves which are amplified to control the manufacture.—A.P.-C.

Variable Flow Pulp Treating Machine. John D. Haskell, assignor to Dilts Machine Works, Inc. U. S. pat. 2,095,361 (Oct. 12, 1937).—In a machine for forming a pulp web on a screening cylinder, a propeller wheel is located at a suitable point in the conduit feeding the stock to the vat. The wheel has adjustable blades constructed so that the pitch of each blade can be varied while the machine is in operation, the control mechanism being located outside the pump. (Cl. 92-43).—A.P.-C.

Recovery of Fine Fibers From White Water. Olaf Qviller, assignor to A/S Thunes Mekaniske Verksted. U. S. pat. 2,100,149 (Nov. 23, 1937).—The white water is mixed with a certain amount of coarse-fiber pulp and is then filtered through a wire cloth on which has been formed a layer of coarse-fiber pulp containing no white water. (Cl. 210-201).—A.P.-C.

Method and Machine for Producing Brazed Seams in Wire Cloth. Nelson W. Webb, assignor to Eastwood-Neally Corp. U. S. pat. 2,100,294 (Nov. 23, 1937).—The invention provides a light portable brazing machine, freely slidable in any direction on the table and consequently able to follow and braze together the edges of the cloth-ends regardless of curves or waves in the edges. (Cl. 113-59).—A.P.-C.

Apparatus for the Manufacture of Paper. E. Alexander Charlton, assignor to International Paper Co. U. S. pat. 2,095,378 (Oct. 12, 1937).—Shaking of the wire is effected by providing under the wire one or more rotatable members with raised portions which contact the under surface of the wire. The raised portions are in the form of removable plugs. (Cl. 92-45).—A.P.-C.

Asbestos Filled Drier Felt. Wm. A. Barrell, assignor to Lawrence Duck Co. U.S. pats. 2,098,993 to 2,098,995 (Nov. 16, 1937).—No. *2,098,993*—The felt is made of cotton (or other fiber of equivalent strength) warp and asbestos filling, woven in two plies with binder warp strands passing between the two plies at points numerous enough to effect a secure connection between them. No. *2,098,994*—The body of the felt consists of a single ply of firm, strong, closely woven fabric made of strands of cotton or other fiber of equivalent strength, and the asbestos covering is provided in the form of strands (covered by No. 2,098,995) parallel with the warp of the body, interwoven with certain non-contiguous filling strands of the body structure and supported on one face thereof by interposed weft strands. *No. 2,098,995*—A composite asbestos yarn is formed of an elongated body of asbestos fiber confined in a "cage" of strands smaller in diameter than the body and extending around the latter in two sets of helices of relatively opposite pitches, spaced apart to leave openings of substantial width. (Cl. 139-426, 139-426, 96-26).—A.P.-C.

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports, of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers. Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING JULY 23, 1938

SUMMARY

Cigarette paper .....1,707 cs.
Wall paper .....5 bls., 1 ctn., 14 cs.
Newsprint .....86 bls., 5,043 rolls
Printing paper .....140 rolls, 39 cs.
Wrapping paper .....1 cs.
Kraft paper .....142 bls., 2,642 rolls
Drawing paper .....2 cs.
Filter paper .....1 bls., 4 cs.
Filter material .....120 bls.
Filter compound .....100 bls., 75 cs.
Surface coated paper .....80 crates., 265 cs.
Surface baryta coated paper .....1 cs.
Metal covered paper .....12 cs.
Basic paper .....2 cs.
Photo paper .....9 cs.
Decalcomania paper .....4 cs.
Transfer paper .....16 cs.
Glazed press paper .....4 cs.
Writing paper .....5 cs.
Tissue paper .....25 bbls., 5 cs.
Paper tubes .....39 cs.
Miscellaneous paper .....159 rolls, 13 bls., 9 cs.

CIGARETTE PAPER

Champagne Paper Corp., *Champlain,* Havre, 1321 cs.
De Mauduit Paper Corp., *Champlain,* Havre, 1 cs.
R. J. Reynolds Tobacco Co., *Washington,* Havre, 130 cs.
De Mauduit Paper Corp., *Washington,* Havre, 221 cs.
——, *Excalibur,* Marseilles, 34 cs.

WALL PAPER

Rohner Gehrig & Co., *Champlain,* Havre, 2 cs.
F. J. Emmerich, *New York,* Hamburg, 5 bls.
S. K. Lonegren, *Gripsholm,* Gothenburg, 1 ctn.
F. Blank & Co., *Washington,* Havre, 12 cs.

NEWSPRINT

N. Y. Evening Journal, *Markland,* Liverpool, N. S., 303 rolls.
N. Y. Tribune, *Markland,* Liverpool, N. S., 1212 rolls.
World Telegram, *Markland,* Liverpool, N. S., 548 rolls.
Brooklyn Daily Eagle, *Markland,* Liverpool, N. S., 483 rolls.
Herald Statesman, *Markland,* Liverpool, N. S., 42 rolls.
N. Y. Post, *Markland,* Liverpool, N. S., 785 rolls.
Washington Post, *Markland,* Liverpool, N. S., 36 rolls.
Jay Madden Corp., *New York,* Hamburg, 446 rolls.
N. Y. Evening Journal, *Washington,* Hamburg, 233 rolls.
Jay Madden Corp., *Washington,* Hamburg, 316 rolls, 86 bls.
International Paper Co., *International* #1, Gatineau, 316 rolls.
International Paper Co., *G. T. D.,* Gatineau, 323 rolls.

PRINTING PAPER

L. A. Consmiller, *Bremen,* Bremen, 36 cs.
D. C. Andrews & Co., *Bremen,* Bremen, 3 cs.
Jay Madden Corp., *Washington,* Hamburg, 140 rolls.

WRAPPING PAPER

E. Arden, Inc., *American Merchant,* London, 1 cs.

KRAFT PAPER

——, *Gripsholm,* Gothenburg, 142 bls., 2642 rolls.

DRAWING PAPER

Devoe & Raynolds Co., *American Merchant,* London, 2 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., *American Merchant,* London, 4 cs.
A. Giese & Son, *New York,* Hamburg, 1 ble.

FILTER MATERIAL

H. Reifenberg, *N. Amsterdam,* Rotterdam, 100 bls.
Max Joseph, *N. Amsterdam,* Rotterdam, 20 bls.

FILTER COMPOUND

H. Reifenberg, *New York,* Hamburg, 100 bls., 75 cs.

SURFACE COATED PAPER

Gevaert Co., of America, *Black Gull,* Antwerp, 87 cs.
Gevaert Co., of America, *Pennland,* Antwerp, 178 cs. (unfinished photo-paper).
Globe Shipping Co., *New York,* Hamburg, 80 crates.

SURFACE BARYTA COATED PAPER

——, *Pennland,* Antwerp, 1 cs.

METAL COVERED PAPER

Winter Wolff & Co., *Washington,* Hamburg, 12 cs.

BASIC PAPER

——, *Pennland,* Antwerp, 1 cs.
——, *American Merchant,* London, 1 cs.

PHOTO PAPER

——, *Queen Mary,* Southampton, 1 cs.
J. J. Gavin & Co., *Washington,* Southampton, 8 cs. (unsensitized).

DECALCOMANIA PAPER

L. A. Consmiller, *Queen Mary,* Southampton, 2 cs.
B. F. Drakenfeld & Co., *Scythia,* Liverpool, 2 cs. (simplex).

TRANSFER PAPER

Atlantic F'd'g. Co., *New York,* Hamburg, 16 cs.

GLAZED PRESS PAPER

Walker Goulard Plehn Co., Inc., *Scythia,* Liverpool, 4 cs.

WRITING PAPER

H. W. Robinson Co., *New York,* Hamburg, 5 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., *Scythia,* Liverpool, 4 cs.
Jay Madden Corp., *Washington,* Hamburg, 25 bbls., 1 cs.

PAPER TUBES

——, *New York,* Hamburg 39 cs.

MISCELLANEOUS PAPER

The Morilla Co., *Champlain,* Havre, 5 cs.
——, *New York,* Hamburg, 86 rolls.
The Borregaard Co., Inc., *Gripsholm,* Gothenburg, 73 rolls, 13 bls.
E. H. Sargent & Co., *Gripsholm,* Gothenburg, 4 cs.

RAGS, BAGGINGS, ETC.

——, *Georgic,* London, 21 bls. rags.
National City Bank, *American Shipper,* Manchester, 76 bls., paper stock.
Manufacturers Trust Co., *Pennland,* Antwerp, 44 bls., rags.
National City Bank, *Pennland,* Antwerp, 24 bls., rayon waste.
Chase National Bank, *Scythia,* Liverpool, 85 bls., bagging.
Bank of N. Y. Trust Co., *Anita,* Buenos Ayres, 67 bls. old hemp canvas.
F. J. Fawcett, *Jean Jadot,* Antwerp, 25 bls., flax waste.
Wertheimer Bag Co., *Fort Amherst,* St. Johns, 110 bls., bagging.
A. W. Fenton, Co., Inc., *Frans Gorthon,* London, 10 bls. rags.
J. Cohen & Son Co., Inc., *Frans Gorthon,* London, 4 bls. rags.
E. J. Keller Co., Inc., *Excalibur,* ——, 132 bls. rags.

HIDE CUTTINGS

——, *American Shipper,* Liverpool, 828 bags.

OLD ROPE

Wm. Steck & Co., *Excalibur,* Marseilles, 56 rolls.
Banco Coml Italiane Trust Co., *Excalibur,* Marseilles, 102 bls.

WOOD PULP

Guaranty Trust Co., *Livenza,* Trieste, 166 bls. wood pulp.
Bankers Trust Co., *Livenza,* Trieste, 341 bls. wood pulp.
Absorbo Beer Pad Co., *New York,* Hamburg, 300 bls. wood pulp, 32 tons.
Castle & Overton, Inc., *New York,* Hamburg, 1680 bls. wood pulp, 336 tons.
M. Sone, *New York,* Hamburg, 508 bls. wood pulp, 101 tons.
Bankers Trust Co., *New York,* Hamburg, 350 bls. wood pulp, 70 tons.
Bulkley Dunton Pulp Co., Inc., *Washington,* ———, 2600 bls. wood pulp, 536 tons.

WOOD PULP BOARDS, ETC.

Fibre Case & Novelty Co., *Gripsholm,* Gothenburg, 18 bls.
Salwen Paper Co., *Gripsholm,* Gothenburg, 65 bls.
———, *Bremen,* Bremen, 25 bls. (sheets).

NEWARK IMPORTS

WEEK ENDING JULY 23, 1938

H. G. Craig Co., Inc., *G. D. D.,* Donnacona, 347 rolls newsprint.

PORTLAND IMPORTS

WEEK ENDING JULY 23, 1938

Gottesman & Co., Inc., *Frode,* Sweden, 1000 bls., unbleached sulphite, 3600 bls. unbleached sulphate.

BOSTON IMPORTS

WEEK ENDING JULY 23, 1938

M. Sone, *Chemnitz,* Hamburg, 508 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 23, 1938

Gilman Paper Co., *Markland,* Liverpool, N. S., 1044 rolls newsprint.
Guaranty Trust Co., *Livenza,* Trieste, 167 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING JULY 23, 1938

Pompeian Corp., *Cypria,* Marseilles, 25 cs. filter paper.
Guaranty Trust Co., *Livenza,* Trieste, 338 bls. wood pulp.
———, *Livenza,* Trieste, 360 bls. wood pulp.
Congoleum Nairn Co., *Excalibur,* Marseilles, 182 bls. rags.
Pagel Horton & Co., Inc., *Schwanheim,* Sweden, 1500 bls. wood pulp.
Price & Pierce, Ltd., *Schwanheim,* ———, 4560 bls. unbleached sulphite.
Price & Pierce, Ltd., *Korsholm,* ———, 210 bls. bleached sulphite.

NEWPORT NEWS IMPORTS

WEEK ENDING JULY 23, 1938

Price & Pierce, Ltd., *Schwanheim,* ———, 8880 bls. unbleached sulphite.

NORFOLK IMPORTS

WEEK ENDING JULY 23, 1938

Royal Manfg. Co., *Black Gull,* Antwerp, 40 bls. bagging.
Darmstadt Scott & Courtney, *Black Gull,* Antwerp, 66 bls. bagging.
Gottesman & Co., Inc., *Schwanheim,* Sweden, 5780 bls. unbleached sulphite, 500 bls. bleached sulphite.

HOUSTON IMPORTS

WEEK ENDING JULY 23, 1938

Darmstadt Scott & Courtney, *Vigilant,* Gdynia, 470 bls. rags.
———, *Vigilant,* Gdynia, 49 bls. bagging.

MONTREAL IMPORTS

WEEK ENDING JULY 23, 1938

Pagel Horton & Co., Inc., *Tyrifjord,* Sweden, 6606 bls. wood pulp.
Pagel Horton & Co., Inc., *Braheholm,* Sweden, 14610 bls. wood pulp.
M. Sone, *Tyrifjord,* Hernosand, 3000 bls. wood pulp.
Price & Pierce, Ltd., *Braheholm,* ———, 3000 bls. bleached sulphite.
Gottesman & Co., Inc., *Tyrifjord,* Sweden, 3000 bls. unbleached sulphite.
Gottesman & Co., Inc., *Brynhild,* Sweden, 13200 bls. unbleached sulphite.

May Ask Statements Under Minimum Wage Act

John L. Richey, executive secretary-treasurer and counsel has sent the following communication to members of the Central States Paper Trade Association, the Middle States Wrapping Paper Association and the Tri-States Wrapping Paper Association:—

The other day, through the courtesy of The Paper and Twine Club, we sent out a copy of the new so-called Fair Labor Standards Act of 1938, with commentaries, passed by Congress at its last session and approved by the President on June 25, 1938, this law becoming effective one hundred and twenty days from that date.

We want to call your attention to Sections 15 and 16 of that law. Section 16 provides a penalty of not more than $10,000 fine or imprisonment for not more than six months, or both, for willful violation of Section 15, and Section 15 provides that it is prohibited to transport, offer for transportation, ship, deliver or sell in commerce, or to ship, deliver or sell with knowledge that shipment or delivery or sale thereof in commerce is intended, any goods in the production of which any employe was employed in violation of Section 6 or Section 7 of the law, or of Section 14, which apparently means, due to the peculiar wording of the section, that a paper merchant would be prohibited from selling or offering for sale or shipment, paper, paper products or twine which was manufactured in violation of the Minimum Wage and Maximum Hour provisions of this law, and would be subject to a fine or imprisonment, or both, for knowingly violating Section 15. Therefore, until court decisions have clarified the interpretation and application of Section 15 of this law, I suggest that on and after 120 days from June 25, 1938, you require on all purchases of merchandise from your various manufacturers and others who are your sources of supply, the following signed statement by way of certificate of compliance with the Federal Fair Labor Standards Act of 1938:

"We do hereby certify to you, as a purchaser of the goods covered by this invoice, that they have been manufactured and handled by us in compliance with the Federal Fair Labor Standards Act of 1938 of the United States of America, and in particular have we not violated in any way Sections 6, 7 and 14 of said Act, and we hereby sell and deliver these goods to you under a warranty that said sections of said law have not been violated in any way in the manufacture, handling or sale of these goods, and it is our understanding that you are making purchase of and accepting delivery of these goods on the strength of the foregoing warranty."

Robert Gair Co. Reports Loss

The Robert Gair Company and subsidiaries report as follows for the first six months to June 30:— Net loss $35,688, contrasted with net profit last year of $671,930, equal after preferred dividend requirements, to 68 cents a share on 574,613 common shares. June quarter: Net loss $49,733, against net profit in preceding quarter of $14,045, equal to 7 cents a share on 185,582 shares of $3 preferred stock, and $355,789, or 37 cents a common share, in second quarter of 1937 after dividend requirements on preferred.

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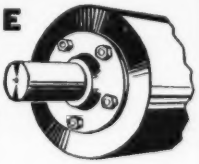

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WOOD STAVE • GLAZED TILE

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, July 27, 1938.

The improvement which began several weeks ago in most divisions of the paper industry has been reflected in the wholesale market. Conditions are reported as better for the current week with an increase in orders for many grades of paper. Consumer demand for some grades, while somewhat improved, is still unsatisfactory. The trend in consumer buying, however, is now apparently upward and more optimism is apparent in the wholesale trade and more confidence in the future is expressed by paper merchants.

The demand for newsprint continues at a moderate level, with no change reported from conditions which have prevailed for the past week or two. Prices remain firm and no change in demand or prices is looked for in the near future.

Substantial improvement is reported in the writing paper division of the market and steady, continued improvement is expected by manufacturers and distributors. Consumer demand in some grades continues at a relatively low level, but in general, conditions are reported as most encouraging.

The demand for tissue papers has shown a marked improvement in the last few weeks. Mills are now reporting production close to capacity. Less price concessions are now being made and the situation in this market is generally considered the most satisfactory it has been for sometime.

The kraft paper market reports demand for wrapping paper as below expectations, with considerable price concessions being made to lower stocks purchased sometime ago. Production, however, continues at a relatively high level and the past two weeks have shown a steady improvement. Conditions are now conceded to be the best in this division of the paper industry since April.

The box board market reports improvement in many grades of board. The expectation in this market is for a steady improvement in August, during which month a substantial pick-up in demand seasonally occurs.

Prices for all grades of paper and board remain relatively firm and no changes from prevailing representative quoted market prices are reported for this week.

Chemical Pulp

Demand for all grades of domestic and imported pulp is reported as light. Prices remain unchanged for the week and no definite trend in either prices or demand is reported in the trade.

Mechanical Pulp

Business continues to be reported as light in mechanical pulp. Prices of all standard grades of imported and domestic brands remain firm with no change in quotations reported this week.

Old Rope and Bagging

Little business is reported in old rope and prices remain at practically nominal quotations. The demand for bagging is light. Prices are unchanged and conform to prevailing quotations.

Rags

The domestic rag market reports prices as very firm for many grades of new rags. Higher quotations are reported this week on No. 1 new white shirt cuttings, new unbleached, and on blue overall. The prices of all other grades remain unchanged.

Waste Paper

Improvement is reported in many grades of old waste paper. White envelope cuttings continue firm. Higher prices for the week are reported on some grades of flat stock, such as stitchless, overissue magazines, solid flat book and several other grades.

Twine

Improvement is reported in the demand for some grades of twine this week and the trend appears to be upward. Quotations on all grades of hard and soft fiber twines remain unchanged at prevailing prices.

New Goodyear Catalogue

A new illustrated catalogue of mechanical goods products manufactured by the Goodyear Tire and Rubber Company now is available upon request, without charge, and is of interest to all users of such widely used items as transmissions, conveyor, elevator and grain belting; air, water, welding, steam and all other types of hose; railroad goods, printers' supplies, molded and lathe cut goods, to mention but a few of the products covered.

In addition to information on construction and application of various mechanical goods, the catalogue also contains valuable hints on proper care of rubber belting and maintenance of belting service records and a complete list of Goodyear mechanical goods branches throughout the United States.

Among the newer developments included are All-Weather link mats, dock and ship fenders and Plioweld rubber lining for tanks and other equipment exposed to acids or acid fumes.

Catalogue can be obtained by addressing a request to The Goodyear Tire and Rubber Company, Akron, Ohio.

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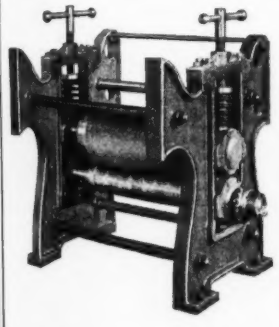

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, July 27, 1938.

BLANC FIXE—The demand for blanc fixe is reported moderate. Prices are unchanged and conform to prevailing quotations. The pulp is quoted at from $42.50 to $45 per ton, in bulk; the powder is quoted at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—The prices of bleaching powder are firm and are unchanged at prevailing quotations. Bleaching powder is offered at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein is reported as moderate for the current week. Prices are firm and unchanged. Domestic ground casein is quoted at 8½ cents per pound; domestic finely ground at 9 cents per pound; all prices in bags, car lot quantities.

CAUSTIC SODA—Quotations on caustic soda continue firm and unchanged. Solid caustic soda is quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—The prices of china clay continue firm and unchanged at prevailing quotations. Imported clay is quoted at from $14.50 to $25 per ton, ship side. Domestic filler clay is offered at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines.

CHLORINE—Quotations on chlorine are firm and unchanged at prevailing prices. Chlorine is quoted at $2.15 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The demand for rosin is reported as fair. Prices are lower for the current week. "G" gum rosin is quoted at $4.40; "FF" wood rosin at $4.40 for 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent gum rosin size is quoted at $2.57 per 100 pounds, f.o.b., shipping point.

SALT CAKE—The demand for salt cake continues at a moderate level. Prices range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12 per ton, f.o.b., shipping point. Imported salt cake is quoted at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—Quotations on soda ash are unchanged and conform to prevailing prices. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—The corn starch market is relatively firm and prices are unchanged for the week. Globe pearl is quoted at $2.60 per 100 pounds, in bags, and at $2.85 in barrels. Special paper starch is quoted at $2.70 per 100 pounds, in bags, and at $2.95 in barrels. All prices in car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina continue firm and conform to prevailing prices. The commercial grades are quoted at $1.15 per 100 pounds; iron free at $1.30 per 100 pounds, in barrels, car lot quantities, f.o.b., works.

SULPHUR—Quotations on sulphur are firm and unchanged at prevailing prices. Annual contracts are quoted at $18 per long ton, f.o.b., cars at mines. Spot and nearby car lots are offered at $21 per ton.

TALC—Prices of talc are firm and unchanged at prevailing quotations. Domestic talc is quoted at from $15 to $18 per ton, Eastern mines. Imported talc is offered at from $25 to $40 per ton, on dock.

Market Quotations

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	●	—
Sheets	58.00	●	—
Kraft—per cwt.—Delivered Zone A			
No. 1 Northern	$5.25	@	—
Superstandard	4.12½	@	5.00
Northern Standard Wrapping	4.50	@	—
Standard Wrapping	4.00	@	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	●	—
White No. 1 M. G.	.90	●	—
White No. 1½	.67½	●	—
White No. 2	.60	●	—
Anti-Tarnish M. G.	.75	●	—
Colored	.87½	●	—
Kraft	.75	●	—
Manila	.60	●	—
Unbl. Toilet, 1 M.	3.20	●	—
Bleached Toilet	5.26	●	—
Paper Towels—			
Unbleached	1.80	●	—
Bleached	2.10	●	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	$8.25	@	$9.75
No. 2 Jute	7.50	@	9.00
No. 1 Manila Wrapping, 35 lb.	5.00	@	—
No. 2 Manila Wrapping, 35 lb.	4.75	@	—
Boards, per ton—			
News	$27.50	@	$30.00
Chip	27.50	@	30.00
Sgl. Mla. Ll. Chip.	42.50	@	—
Jute Lined Chip	45.00	@	—
White Pat. Coated.	55.00	@	57.50
Kraft Liners	45.00	@	50.00
Binders Boards	71.00	@	77.00

The following are representative of distributors' resale prices:—

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1.	$39.10@$46.00	$40.25@$47.25
100% Rag	31.05@ 36.50	32.20@ 37.75
85% Rag		29.90@ 35.00
75% Rag	23.60@ 27.75	24.75@ 29.00
65% Rag		21.65@ 26.25
50% Rag	17.55@ 21.50	18.70@ 22.75
25% Rag	14.65@ 17.75	15.80@ 19.25

Colors at $1.00 cwt. extra

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$8.80@$10.75	$9.95@$12.00
No. 2	7.90@ 9.50	9.05@ 11.00
No. 4	7.00@ 8.50	8.20@ 10.00

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$10.80	@$12.25
No. 2 Glossy Coated	9.25	@ 10.50
No. 3 Glossy Coated	8.15	@ 9.25
No. 4 Glossy Coated	7.65	@ 8.75
No. 1 Antique (watermarked)	7.65	@ 8.75
No. 2 Offset	7.00	@ 8.00
A Grade E. F.	6.80	@ 7.75
A Grade S. & S. C.	7.05	@ 8.00
B Grade E. F.	6.25	@ 7.25
B Grade S. & S. C.	6.50	@ 7.50
C Grade E. F.	6.00	@ 7.00
C Grade S. & S. C.	6.25	@ 7.25
D Grade E. F.	5.70	@ 6.75
D Grade S. & S. C.	5.95	@ 7.00

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	27.00	●	30.00
Dry	27.00	●	30.00
(Delivered)			
No. 1 Domestic and Canadian	29.00	●	33.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	2.50	@	3.00
Prime Qualities—			
Easy-Bleaching Sulphite	2.15	@	2.25
Strong Unbleached Sulphite	1.85	@	2.15
(On Dock, Atlantic Ports)			
Kraft Bleached	2.75	@	3.00
Kraft Light & Strong	2.00	@	2.15
Kraft No. 1	1.85	@	2.00
Kraft No. 2	1.65	@	1.80
(F.o.b. Pulp Mill)			
Kraft Domestic	1.75	●	2.25
(Delivered)			
Soda Bleached	2.70	●	—

Add 60 cents per short ton, discharges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	6.75	@	7.00
Silesias No. 1	4.00	@	4.25
New Unbleached	6.75	@	7.00
Blue Overall	5.50	@	5.75
Fancy	2.10	@	2.25
Washables	1.60	@	1.70
Mixed Khaki Cuttings	3.25	@	3.75
O. D. Khaki Cuttings	4.00	@	4.25

Old Rags

White, No. 1—			
Repacked	3.15	@	3.40
Miscellaneous	2.60	@	2.75
White, No. 2—			
Repacked	2.10	@	2.35
Miscellaneous	1.70	●	1.80
Thirds and Blues—			
Repacked	1.40	●	1.50
Miscellaneous	1.25	●	1.30
Roofing Rags—			
No. 1	1.00	●	1.15
No. 2	.75	●	.80
No. 3 (bagging)	.65	●	.70
No. 4	.65	●	.70
No. 5A	.65	●	.70

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	—

WATERBURY FELTS

Are Made By

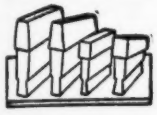
H. WATERBURY & SONS CO.

ORISKANY, NEW YORK

WOOD COGS

OF ALL DESCRIPTIONS, BLANK OR FINISHED

From Thoroughly Seasoned New Hampshire Rock Maple



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THOMPSON MANUFACTURING CO.

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Oil and water resistant belts that will save you money in the long run. ¶ Since 1876 we have been supplying the industry direct from our own tanneries.

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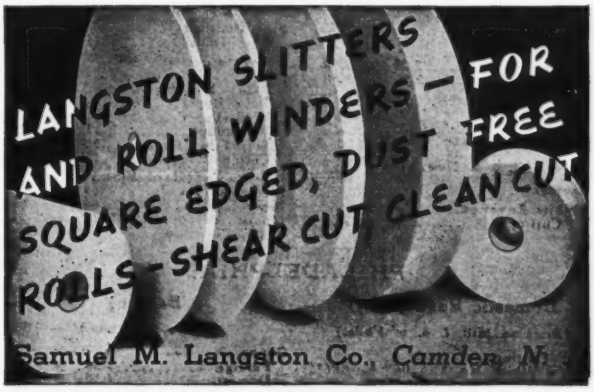

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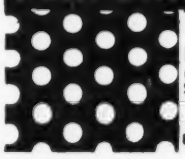

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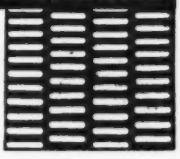

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The "Preferred" Quality of Bleached Kraft

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Fourdrinier Wires

MENASHA, WISCONSIN

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	@	4.75
No. 2 White Cotton.	3.25	@	3.75
No. 3 White Cotton.	2.50	@	3.00
No. 4 White Cotton.	1.90	@	2.20
Extra Light Prints..	2.00	@	2.40
Ord. Light Prints...	1.75	@	2.15
Med. Light Prints...	1.55	@	1.95
Dutch Blue Cottons..	2.25	@	2.50
French Blue Linens..	3.00	@	—
Checks and Blues...	2.00	@	—
Linsey Garments....	1.90	@	2.00
Dark Cottons.....	1.50	@	1.60
Old Shopperies.....	1.30	@	1.45
New Shopperies.....	1.45	@	1.50
French Blues.....	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.30	@	2.40
Domestic	2.25	@	2.35
Wool Tares, white...	1.50	@	1.75
Wool Tares, heavy...	1.55	@	1.80
Bright Bagging.....	1.45	@	1.50
Manila Rope—			
Foreign	2.50	@	2.75
Domestic	2.25	@	2.50
Jute Threads.....	2.75	@	3.00
Sisal Strings.....	1.40	@	1.50
Mixed Strings.....	.60	@	.70

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.50	@	2.60
Ordinary Hard White No. 1....	1.90	@	2.00
Soft White No. 1..	1.75	@	1.80
Soft White Extra..	2.25	@	2.40
Flat Stock—			
Stitchless	.70	@	.75
Overissue Mag.....	.60	@	.65
Solid Flat Book...	.50	@	.55
Crumbled No. 1....	.40	@	.45
Ledger Stock White.	1.10	@	1.20
Ledger Stock Colored	.65	@	.75
New B. B. Chips....	.15	@	.20
Manila—			
New Env. Cut.....	1.40	@	1.50
New Cuttings.....	1.25	@	1.35
Old Kraft Machine—			
Compressed bales..	.60	@	.65
News—			
No. 1 White News	1.35	@	1.40
Strictly Overissue..	.40	@	.45
Strictly Folded....	.30	@	.35
No. 1 Mixed Paper..	.10	@	.15

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.11	@	.13
White Hemp.....	.12	@	.14
Fine Polished—			
Fine India.....	.15	@	.17
Unpolished—			
Box	.08½	@	—
Paper Makers.....	.07½	@	.08½
Tube Rope.....	.09	@	.10
Wall Paper.....	.10	@	.11
Wrapping	.11	@	.13
Soft Fiber Rope....	.09½	@	.11½
Cotton	.15	@	.20

(Hard Fiber)

Medium Java.....	.09	@	.10
Mex. Sisal.....	.08½	@	.09½
Manila	.18	@	.25

Domestic	2.25	@	2.50
Sisal Rope.....	1.65	@	1.85
Mixed Rope.....	.50	@	.75
Transmission Rope...	1.60	@	1.85
Soft Jute Ropes.....	1.50	@	1.60
Jute Carpet Threads..	.75	@	.90
Gunny Bagging—			
Foreign	2.25	@	2.30
Domestic	2.00	@	—
Bleachery Burlap....	3.00	@	3.50
Scrap Burlap—			
Foreign	1.50	@	1.60
Domestic	1.35	@	1.40
Scrap Sisal	1.25	@	1.50
Scrap Sisal for Shredding	1.75	@	1.90
Wool Tares, Heavy..	1.50	@	1.60
New Burlap Cuttings	1.75	@	2.00
Aust. Wool Pouches.	2.75	@	3.00
Heavy baling bagging	1.75	@	1.90
Paper Mill Bagging..	1.00	@	1.15
No. 2 Bagging.....	.60	@	.70

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	.03	@	.03¼
New White No. 1...	.06½	@	.06¾
New White No. 2.	.05	@	.05½
New Light Flannelettes	.04¼	@	.04¾
Silesias No. 1.....	.04¼	@	.04¾
New Black Silesias..	.03¾	@	.04
Silesias No. 1 Soft Unbleached.....	.06	@	.06½
Blue Cheviots.....	.05	@	.05¼
Fancy	.03	@	.03¼
Washable	.02¾	@	.03

Cottons—According to grades—			
Blue Overalls.....	.04¼	@	.05
New Black, soft...	.03¼	@	.04
Khaki Cuttings....	.03¼	@	.03½
O. D. Khaki.....	.04	@	.04½
Corduroy	.02¾	@	.03
New Canvas.....	.06¾	@	.07¼
B.V.D. Cuttings.....	—	@	.06½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues.....	1.75	@	1.90
Third and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.40½
Black Stockings.....	3.90	@	4.00
Roofing Stock—			
No. 1.....	1.00	@	1.10
No. 2.....	.75	@	.85
No. 3.....	.65	@	.70

Foreign Rags

(F. o. b. Boston)

Dark Cottons.....	1.00	@	1.05
Dutch Blues.....	2.65	@	2.75
New Checks and Blues	2.85	@	3.00
Old Fustians.....	2.25	@	2.50
Old Linsey Garments	2.20	@	2.25
New Silesias.....	6.00	@	6.50

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.06	@	.06¼
New White, No. 2.	.03¾	@	.04
Light Silesias.....	.04	@	.04½
Silesias. No. 1....	—	@	.04½
Black Silesias, soft.	—	@	.03
New Unbleached..	.05½	@	.06
Washable, No. 1..	.01¾	@	.01½
Blue Overall.....	.04	@	.04½
Cottons—According to grades—			
Washable No. 2....	.01	@	.01¼
New Blue.....	.01	@	.01¼
Fancy Percales....	—	@	.02½
New Black Soft...	.03	@	.03¾
New Light Seconds	—	@	.04½
New Dark Seconds	.50	@	.75
Khaki Cuttings—			
No. 1 O. D.....	.03	@	.03½
No. 2 Mixed.....	.02	@	.02½
Corduroy	—	@	.02
New Canvas.....	.05	@	.05½
New Black Mixed.	.02½	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.25
Miscellaneous	2.50	@	2.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1....	—	@	.75
Domestic No. 1....	—	@	1.00
Domestic No. 2....	—	@	.85
Roofing Bagging..	—	@	.70

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.75
Domestic	1.50	@	1.75
Manila Rope.....	3.00	@	3.25
Sisal Rope.....	—	@	1.50
Mixed Rope.....	.75	@	1.00
Scrap—			
No. 1.....	—	@	1.50
No. 2.....	1.00	@	1.25
Wool Tares, heavy..	3.25	@	3.50
Mixed Strings....	1.00	@	1.10
No. 1 New Light Burlap	2.50	@	3.00
New Burlap Cuttings	1.75	@	2.00

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.15	@	2.20
No. 2 Hard White.	2.00	@	2.10
No. 1 Soft White..	1.80	@	1.90
No. 2 Soft White..	1.25	@	1.30
No. 1 Mixed.....	.70	@	.75
Solid Ledger Stock..	1.50	@	1.60
Ledger Stock, white.	1.00	@	1.10
Ledger Stock, colored	.75	@	.80
No. 1 Books, heavy..	.65	@	.70
Manila Cuttings.....	1.50	@	1.75
Print Manila.....	.30	@	.35
Container Manila....	—	@	.40
Kraft Paper.....	.75	@	.80
No. 1 Mixed Paper..	.15	@	.20
Straw Board Chip...	.25	@	.30
Binders Board Chip.	.25	@	.30
Corrugated Board...	.50	@	.55
Overissue News.....	.50	@	.55
Old Newspapers.....	.30	@	.35

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White.	2.25	@	2.40
No. 1 Soft White..	1.85	@	2.15
No. 2 Mixed.....	.75	@	.80
Solid Ledger Books..	1.50	@	1.75
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers.....	.85	@	.90
No. 1 Books, heavy..	.65	@	.75
No. 1 Books, light...	.65	@	.75
Crumpled Stitchless Book Stock.....	.55	@	.65
Manila Env. Cuttings	1.60	@	1.70
Manila Envelope Cuttings, extra quality.	2.00	@	2.10
No. 1 Old Manila...	.95	@	1.00
White Blank News..	1.30	@	1.40
No. 1 Kraft.....	.90	@	—
Mixed Papers.....	.12½	@	—
Print Manila.....	.45	@	.55
Container Manilas...	.27½	@	—
Old Newspapers.....	.25	@	.32½
Paper Wool Strings..	.75	@	—
Overissue News.....	.45	@	.50
Box Board Chips....	.20	@	.25
Corrugated Boxes....	.27½	@	.30
Kraft corrugated boxes	.65	@	.70
Screening Wrappers..	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.40	@	2.50

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings....	1.80	@	1.90
No. 1 Hard White.	1.70	@	1.80
No. 1 Soft White..	1.50	@	—
Ledger & Writings..	.75	@	.80
Solid Books.....	.55	@	—
Blanks	.90	@	—
Krafts	.60	@	—
New Kraft Cuts.....	1.10	@	—
Manila Env. Cuts...	Nominal		
Ex. No. 1 Manila...	Nominal		
Print Manila.....	Nominal		
Overissue News.....	.35	@	—
Old Newspapers—			
No. 1 Folded News	.30	@	—
No. 1 Mixed Paper	.20	@	—
Roofing Stocks—			
No. 1.....	2.00	@	1.10
No. 2.....	1.85	@	1.90

TORONTO

Paper

Bonds and Ledgers

Delivered

No. 1 White	.36½	@	—
No. 1 Tints	.37½	@	—
No. 2 White	.26½	@	—
No. 2 Tints	.27½	@	—
No. 4 White	—	@	.1550
No. 4 Tints	16.50	@	—
No. 5 Bond—White	11.85	@	—
No. 5 Bond—Tints	12.85	@	—
No. 5 Bond—Golden Rod	13.35	@	—
No. 5 Ledger—White	.1185	@	—
No. 5 Ledger—Tints.	.1285	@	—
No. 6 Bond—White .	10.75	@	—
No. 6 Bond—Tints .	11.25	@	—
No. 6 Bond—Golden Rod	12.75	@	—
No. 7 Bond—White .	9.10	@	—
No. 7 Bond—Tints .	9.60	@	—
No. 7 Bond—Golden Rod	11.10	@	—
Book—			
No. 1 M. F.	7.35	@	—
No. 2 M. F.	6.85	@	—
No. 3 M. F.	5.60	@	—
No. 1 S. C.	7.60	@	—
No. 2 S. C.	7.10	@	—
No. 3 S. C.	6.10	@	6.35
No. 1 Coated Book and Litho 12.50		@	—
No. 2 Coated Book and Litho 11.00		@	—
No. 3 Coated Book and Litho 10.00		@	—
Coated tinted.....13.50		@	—
Wrapping—delivered—			
Rag Brown.....	4.85	@	5.55
White Wrap.....	4.00	@	—
"B" Manila.....	4.90	@	6.25
No. 1 Manila.....	5.50	@	7.00
Fiber	5.50	@	—
Kraft No. 2.....	5.50	@	—

(F. o. b. Cars, Toronto)

News per ton—			
Rolls (contract)..$50.00		@	—
Sheets 69.50		@	—

Pulp

Ground wood.....29.00		@	—
Unbleached Sulphite..49.00		@	—
Book (Class 1).....59.00		@	—
Writing (Class 2)...57.00		@	—
Select (Class 3).....58.00		@	—
Kraft 50.00		@	—
Soda 54.00		@	56.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut...	2.25	@	—
Soft White.....	2.15	@	—
White Blk. News..	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.80	@	—
Light and Crumpled Book Stock.	.70	@	—
Ledgers and Writings	1.10	@	—
Manilas—			
New Manila Cut...	1.35	@	—
Printed Manilas...	.45	@	—
Kraft	.95	@	—
News and Scrap—			
Strictly Overissue.	.50	@	—
Strictly Folded....	.45	@	—
No. 1 Mixed Paper..	.30	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06½	@	.06¾
Fancy Shirt Cuttings	.02¼	@	.02½